HARPER, KELLY L., Ph.D. Interpersonal Perfectionism, Attributions, Expectations, and Social Disconnection in Daily Life: An Extension of the Social Disconnection Model. (2019)
Directed by Dr. Kari M. Eddington. 100 pp.

There is extensive research supporting the social disconnection model, which is a model linking interpersonal perfectionism (i.e., perceiving others have excessively high standards for oneself) with suicidal behavior through subjective or objective social disconnection. However, research has not examined cognitive factors related to hopelessness that may play an important role in explaining how perfectionists think about their social relationships. The current study extended research on the perfectionism social disconnection model by including these cognitive factors, such as negative attributions about social events and expectations for future social interactions. Additionally, the current study examined these factors in daily life. The primary aim was to examine how attributions about specific negative social events and expectations about future social events, relate to socially prescribed perfectionism (SPP), daily subjective disconnection, and daily mood. The current study used experience sampling methodology (ESM) with 145 participants to test a two-level path model examining whether attributions and expectations explain the relation between SPP and loneliness at the following time point. Results indicate that attributions and expectations did not predict loneliness at the following time point. However, post-hoc analyses revealed that across models, SPP was positively associated with loneliness and expectations, which were also related to each other at the same time point. Although the causal direction of the association between social expectations and loneliness is unclear, treatment targeting expectations about

future social interactions and loneliness may decrease feelings of disconnection for perfectionists.

INTERPERSONAL PERFECTIONISM, ATTRIBUTIONS, EXPECTATIONS, AND SOCIAL DISCONNECTION IN DAILY LIFE: AN EXTENSION OF THE SOCIAL DISCONNECTION MODEL

by

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A Dissertation Submitted to
the Faculty of The Graduate School at
The University of North Carolina at Greensboro
in Partial Fulfillment
of the Requirements for the Degree
Doctor of Philosophy

Greensboro
2019

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TABLE OF CONTENTS

Page

CHAPTER

CHAPTER I

INTRODUCTION

Perfectionism is typically considered a multidimensional construct (Frost, Marten, Lahart, & Rosenblate, 1990; Hewitt & Flett, 1991b; Slade & Owens, 1998; Slaney, Rice, Mobley, Trippi, & Ashby, 2001) with adaptive and maladaptive components (Bieling, Summerfeldt, Israeli, & Antony, 2004; Dunkley, Blankstein, Halsall, Williams, & Winkworth, 2000; Enns & Cox, 2002; Slade & Owens, 1998; Slaney et al., 2001). One component that is consistently associated with maladaptive outcomes is interpersonal perfectionism (see Shafran & Mansell, 2001 for a review). Interpersonal perfectionism, also known as socially prescribed perfectionism (SPP), is characterized by the tendency to feel like others have excessively high standards for oneself and feeling like one cannot live up to others' standards (Hewitt & Flett, 1991b). Additionally, interpersonal perfectionists tend to feel like they must be perfect to be accepted by others (i.e., conditional worth; Campbell & Paula, 2002; Stoeber & Childs, 2010), have a fear of negative evaluation (Casale, Fioravanti, Flett, & Hewitt, 2014; Flett, Hewitt, & De Rosa, 1996; Hewitt & Flett, 1991b), and have a high need to belong (Chen, Hewitt, & Flett, 2015). Hewitt and Flett (1991) first defined and created a measure of interpersonal perfectionism (i.e., SPP); however, other researchers, such as Frost et al. (1990), also consider interpersonal perfectionism a maladaptive dimension of perfectionism (i.e.,

Parental Expectations and Parental Criticism subscales of the Multidimensional Perfectionism Scale; Frost et al., 1990).

In terms of psychopathology, interpersonal perfectionism has been consistently and strongly associated with maladaptive outcomes (see Shafran & Mansell, 2001 for a review). For example, SPP has been associated with depressive symptoms (Cox & Enns, 2003; Enns et al., 2001; Hewitt & Flett, 1991a, 1993; Hewitt, Flett, & Ediger, 1996), anxiety disorders (Antony, Purdon, Huta, & Swinson, 1998; Bieling et al., 2004; Frost & Steketee, 1997), eating disorders (Bastiani, Rao, Weltzin, & Kaye, 1995; Hewitt, Flett, & Ediger, 1995), and suicidality (Hewitt, Flett, Sherry, & Caelian, 2006; Hewitt, Flett, & Weber, 1994; Rasmussen, O'Connor, & Brodie, 2008; Smith et al., 2017). In addition to being a risk factor for psychopathology, interpersonal perfectionism has also prospectively predicted depression (Dunkley, Sanislow, Grilo, & McGlashan, 2006, 2009). Though interpersonal perfectionism is linked with an array of psychopathology, it appears to have the strongest association with depression (Shafran & Mansell, 2001).

Interpersonal perfectionism is also an important factor in the effectiveness of psychotherapy. Findings from a treatment study examining cognitive-behavioral therapy (CBT) for social anxiety found that non-responders to the treatment were higher on interpersonal perfectionism (Lundh & Öst, 2001). Moreover, results from a recent meta-analysis indicated there was mixed evidence for whether CBT for perfectionism reduces interpersonal perfectionism (Lloyd, Schmidt, Khondoker, & Tchanturia, 2015). In contrast, there is evidence to suggest CBT effectively reduces other domains of perfectionism (i.e., personal standards). Based on the strong connection between

interpersonal perfectionism and psychopathology, it is important to identify the mechanisms that increase the risk, and the maintenance, of psychopathology to further improve treatment of perfectionism.

Social Disconnection Model

One pathway that is theorized to explain the link between interpersonal perfectionism and psychopathology is social process – that is, how perfectionistic individuals interact with others and perceive those interactions. The social disconnection model is a socio-cognitive model that posits that the relation between interpersonal perfectionism and suicide is mediated by subjective or objective disconnection from others (Hewitt et al., 2006). Although the social disconnection model is a model of suicidal behavior, research has examined the interpersonal processes in the model as predictors of depression, negative affect, and distress.

It is theorized that interpersonal perfectionism increases the risk for feeling disconnected from others through two pathways—interpersonal hostility and interpersonal sensitivity (Hewitt et al., 2006). By acting interpersonally hostile and sensitive, perfectionists experience disconnection (both perceived and objective) that leads to feeling hopeless about their relationships. Specifically, interpersonal hostility (e.g., being domineering or dismissive) leads to objective disconnection from others. Research on interpersonal styles of people high on SPP indicate that they are either hostile dominant or hostile submissive (Habke & Flynn, 2002; Hill, Zrull, & Turlington, 1997; Stoeber et al., 2017), which in turn leads to conflict and impaired relationships. For example, people high on interpersonal perfectionism have lower marital satisfaction

(Habke, Hewitt, & Flett, 1999; Haring, Hewitt, & Flett, 2003) and higher levels of daily conflict with marital partners (Mackinnon et al., 2012; Sherry et al., 2014).

The other pathway in the social disconnection model, and the focus of this project, is through interpersonal sensitivity. Interpersonal sensitivity is conceptualized as fear of negative evaluation, high rejection sensitivity, and high validation seeking (Hewitt et al., 2006). Moreover, interpersonal sensitivity is proposed to mediate the relation between interpersonal perfectionism and subjective social disconnection (e.g., not feeling connected to others, loneliness; Hewitt et al., 2006). There is both correlational data and mediational data that suggests interpersonal sensitivity is an important factor associated with interpersonal perfectionism. Research shows that interpersonal perfectionism is correlated with validation seeking (Flett, Besser, & Hewitt, 2014; Sherry et al., 2014), fear of negative evaluation (Casale et al., 2014; Flett et al., 1996; Hewitt & Flett, 1991b), and rejection sensitivity (Flett et al., 2014). Furthermore, a study by Hewitt, Besser, and Flett (2014) found validation seeking mediated the relation between interpersonal perfectionism and depressive symptoms when measured concurrently. Results from the same study also suggested that people high on interpersonal perfectionism and rejection sensitivity had higher depressive symptoms. In sum, these results indicate that interpersonal perfectionists fear disapproval and seek validation. Furthermore, interpersonal sensitivity may be a process that increases risk of depression in perfectionists.

In terms of subjective disconnection, perfectionism has been linked to lower perceived social support (Dunkley et al., 2000, 2006; Dunkley, Zuroff, & Blankstein,

2003; Mackinnon, Sherry, Pratt, & Smith, 2014), feeling like one doesn't matter to others (Cha, 2016; Flett, Galfi-Pechenkov, Molnar, Hewitt, & Goldstein, 2012), and higher levels of loneliness (Chang, 2013; Chang, Sanna, Chang, & Bodem, 2008; Goya Arce & Polo, 2016; Muyan & Chang, 2015). Moreover, multiple studies have shown the role subjective social disconnection plays between perfectionism and maladaptive outcomes. With regards to social support, Dunkley et al. (2000) found that social support was a unique mediator within a larger mediation model (including coping and hassles) between evaluative concerns (a latent variable constructed in part by SPP) and distress. Dunkley et al. (2003) extended this finding by examining similar processes in daily life. Results indicated that people high on self-critical perfectionism (a latent variable with SPP) experienced higher levels of negative affect on days in which they perceived lower levels of social support. Furthermore, a longitudinal study indicated that perceived social support mediated the relation between perfectionism and depressive symptoms three years later (Dunkley et al., 2006). Finally, a more recent study examined first-year college students' transition to college; findings suggest that intimacy moderated the relation between perfectionism and depression. Specifically, perfectionists who reported lower levels of intimacy with friends had higher depression after their first semester (Mackinnon et al., 2014). Overall, these findings indicate that perceived social support, which has been used as an indicator of perceived disconnection from others, plays a role in explaining the relation between interpersonal perfectionism and negative outcomes.

Feeling like one matters to others (termed "mattering" in the literature) is another construct that has been used to indicate subjective disconnection. Only two studies have

examined mattering and SPP; however, both studies found that mattering partially mediated the relation between interpersonal perfectionism and depression (Cha, 2016; Flett et al., 2012). More specifically, perfectionists perceive they don't matter to others, which in turn increases depressive symptoms.

Loneliness is another construct that has been used as an indicator of subjective disconnection from others in the social disconnection model (Chang et al., 2008; Goya Arce & Polo, 2016). Chang et al. (2008) examined the moderating effect of loneliness on the relation between SPP and depressive and anxiety symptoms in college students. Results indicated that people high on SPP and high on loneliness had increased depressive and anxiety symptoms. More recently, Goya Arce and Polo (2016) examined the mediation effect of loneliness in the social disconnection model. They found that interpersonal perfectionism predicted loneliness, which in turn predicted depression. However, this study examined this effect in youth (i.e., 11 to 14 years old); less is known about adult populations.

Lastly, another construct that is often used to indicate disconnection is negative social interactions. Two recent studies found that perceived negative social interactions mediated the relation between interpersonal perfectionism and depression (Dunkley et al., 2006; Nepon et al., 2011). Moreover, Dunkley et al. (2006) found that negative social interactions predicted depression through lower perceived social support. Finally, a daily diary study examined how engaging in self-defeating behaviors (negative social interactions was included in this measure) predicted feeling like one is not living up to others' expectations; results indicated that when perfectionists engaged in self-defeating

behaviors, such as negative social interactions, they felt more discrepancy between where they are and others' expectations the following day (Mushquash & Sherry, 2012).

Summary

Overall, the social disconnection model has support for each proposed process. Research suggests that interpersonal perfectionists are interpersonally sensitive (i.e., seek validation, high on rejection sensitivity, and fear negative evaluation) and experience subjective disconnection from others (i.e., lower perceived social support, lower levels of mattering to others, loneliness, and perceiving negative social interactions). Furthermore, indicators of interpersonal sensitivity and subjective disconnection mediate the relation between perfectionism and depression. However, research on the social disconnection model has not yet examined potentially important cognitive variables, such as how perfectionists interpret their social world.

Hopelessness in the Social Disconnection Model

A key underlying component of the social disconnection model is hopelessness about social relationships. The model suggests that through objective or subjective disconnection perfectionists feel hopeless about future interpersonal interactions and in turn have increased suicidality (Hewitt et al., 2006). Interpersonal perfectionism has been associated with general hopelessness (O'Connor et al., 2007; O'Connor & O'Connor, 2003; O'Connor, O'Connor, O'Connor, Smallwood, & Miles, 2004). Only one study has directly examined the association between interpersonal perfectionism and social hopelessness; results from the study suggest that social hopelessness mediates the relation between interpersonal perfectionism and suicide risk (Roxborough et al., 2012).

However, questions about how perfectionists perceive social situations and how these perceptions carry over into future perceptions of disconnection have not been examined. Both attributional styles and expectations for the future are socio-cognitive factors that are linked with feeling hopeless (Abramson, Metalsky, & Alloy, 1989; Weiner, 1985); however, research on the social disconnection model has not focused on how perfectionists appraise social events or their expectations for future events. Inclusion of these cognitive processes would enhance the model because they may be another mechanism that explains subjective disconnection.

Attributional Styles

The hopelessness theory posits that negative attributional styles lead to depression through feeling hopeless (Abramson et al., 1989; Abramson, Seligman, & Teasdale, 1978). Attributional styles are a person's tendency to make causal appraisals about events that can be positive or negative. A negative attributional style is defined by a tendency to make global (e.g., generalized to all domains), internal (e.g., blames oneself), and stable (e.g., problem will continue over time) attributions about negative events (Abramson et al., 1989; Abramson et al., 1978). Additionally, negative attributions can take the form of believing that the event will lead to other negative events (Alloy, Abramson, Hogan, & Whitehouse, 2000). Research indicates that negative attributional style is a risk factor for depression (Abramson et al., 1989; Metalsky, Joiner, Hardin, & Abramson, 1993), and also predicts future depressive episodes (Alloy, Abramson, Whitehouse, & Hogan, 1999).

Attributional styles have been primarily researched as a trait, or a general tendency to make certain causal appraisals. However, several studies have examined

situational attributions and the link to depressed mood (Hankin, Fraley, & Abela, 2005; Metalsky et al., 1993; Swendsen, 1997, 1998). There are strengths to studying attributions at the event-specific level; firstly, event-specific appraisals explain some of the relation between trait negative attributional styles and depression (Hankin et al., 2005). Secondly, measuring event-specific attributions may provide further understanding of how people are interpreting their daily world, such as performance on exams (Metalsky et al., 1993; Swendsen, 1997), which can have a lasting effect on mood. Lastly, studying attributions at the event-specific level may capture events that are more relevant to the person and the perceptions of these events, which may have a greater impact on mood (Hewitt & Flett, 1993; Mackinnon et al., 2014). For example, the specific vulnerability hypothesis suggests that when interpersonal perfectionists encounter social stressors, such as rejection, they will be more affected by these stressors (compared to other, non-interpersonal stressors) because approval from others is important to them (Hewitt & Flett, 1993). However, research supporting the specific vulnerability hypothesis is mixed. Studies that did not find support for the specific vulnerability hypothesis measured social stress by having participants retrospectively identify whether stressors occurred during a specific time period from a list of possible social stressors (Enns & Cox, 2005; Flett, Hewitt, Garshowitz, & Martin, 1997; Hewitt et al., 2002, 1996; Joiner & Schmidt, 1995). In contrast, one study that used an autobiographical narrative approach for measuring social stress did find support for the specific vulnerability hypothesis (Mackinnon et al., 2014). Mackinnon et al. (2014) argued that allowing people to report on social stress using a narrative approach captures

more of the person's interpretation of the event. Therefore, allowing people to generate a description of their own stressful event and provide information about their interpretations of the event may play an important role in explaining reactions or mood.

To date, only one study has examined event-specific attributions about negative events in daily life (Hankin et al., 2005). Findings indicated that negative attributions about daily negative events predicted daily negative mood over and above trait attributional style. Furthermore, event-specific attributions mediated the relation between trait attributional style and daily mood. These results suggest that attributions about daily events provide additional information about how people are interpreting events, and how appraisals are related to mood. Overall, examining event-specific attributions may provide information on how interpersonal perfectionists are interpreting their social world, and in turn how this may be impacting their perceptions of connectedness and mood.

In terms of perfectionists' attributional styles, people high on interpersonal perfectionism are more likely to make negative attributions about events (Anshel & Mansouri, 2005; Blankstein & Winkworth, 2004; Brown et al., 1999; Chang & Sanna, 2001; Flett, Hewitt, Blankstein, & Pickering, 1998). However, the majority of the research on attributional styles in perfectionists has focused on attributions made about achievement (e.g., progress towards personal goals, performance on examinations and sports games; Anshel & Mansouri, 2005; Blankstein & Winkworth, 2004; Levine, Werner, Capaldi, & Milyavskaya, 2017; Stoeber & Becker, 2008). Findings from these studies suggest that that people high on perfectionism tend to make external attributions

about successes and internal attributions about failures. Additionally, one study found that the tendency to make negative attributions is related to higher depressive symptoms in interpersonal perfectionists (Chang & Sanna, 2001).

Although research indicates perfectionists tend to make negative attributions, the research has not focused specifically on attributions for social interactions. Based on interpersonal perfectionists' tendency towards making internal attributions about failures, they likely would also make internal attributions about negative social interactions. Examining how people high on interpersonal perfectionism interpret their social interactions may be useful in furthering our understanding of the social disconnection model. For example, the attributions someone makes about social encounters may lead them to feel less hopeful about future encounters and further disconnected from others.

Expectations for Future Social Events

Similar to attributional styles, negative expectations about the future is a component of hopelessness (Abramson et al., 1989). Having negative expectations about the future may take the form of expecting bad things to happen or having lower expectations that good things will happen (Beck, Weissman, Lester, & Trexler, 1974; MacLeod & Byrne, 1996). Both the presence of negative expectations and the absence of positive expectations has been associated with lower well-being (MacLeod & Byrne, 1996).

One study examined how interpersonal perfectionism was related to both negative and positive future thinking (O'Connor et al., 2004). Future thinking was measured with a task that had people generate positive and negative future experiences for the next

week, next year, and in the next 5-10 years. Interpersonal perfectionism was correlated with both positive and negative future thinking, in opposite directions. It was positively correlated with negative future thinking and negatively correlated with positive future thinking. Additionally, interpersonal perfectionism interacted with positive thinking to predict hopelessness while controlling for depression and anxiety; higher levels of interpersonal perfectionism and lower levels of positive thinking predicted the highest levels of hopelessness. This finding was also replicated in a more recent study using a different measure of future thinking (Stoeber & Corr, 2017). These results suggest that it is useful to consider both positive and negative thinking in interpersonal perfectionists to understand feeling hopeless.

However, few studies have examined expectations about social interactions in interpersonal perfectionists. A model of perfectionism and social anxiety suggests that perfectionists perceive they have lower social self-efficacy and that others have high expectations for them, which leads to expecting social interactions will go poorly (Heimberg, Juster, Hope, & Mattia, 1995). Several studies have shown support for the link between interpersonal perfectionism and lower levels of social self-efficacy (Alden, Bieling, & Wallace, 1994; Locicero & Ashby, 2000; Martin, Flett, Hewitt, Krames, & Szanto, 1996). Lower self-efficacy may be considered an internal stable attribution one's one abilities. Weiner (1985) suggested that stable attributions about the causes of events are directly linked to expectations about future events. Although research to support this connection is based on research involving achievement situations (see Weiner, 1985 for review), the same relationship may be relevant in social situations. For example, making

stable, negative attributions about one's ability to interact with others following an unpleasant social event may lead a person to make more negative predictions about future interactions.

Thus far, only one study has examined perfectionists' expectations regarding future social interactions (Laurenti et al., 2008). Laurenti et al. (2008) conducted a lab-based study examining perfectionists' appraisals about a future interaction with an opposite-sex stranger. Interpersonal perfectionism did not predict negative statements about how the interaction would go above social anxiety; however, interpersonal perfectionism moderated the relation between social anxiety and negative statements such that people who are socially anxious and high on SPP made more negative statements. Of note, there are some limitations to the generalizability of Laurenti et al.'s (2008) findings. The study measured expectations for a contrived future interaction with a stranger in the lab (an interaction that did not actually occur). It did not examine expectations for future social interactions with people in the participant's life or how expectations relate to social disconnection.

In summary, examining how perfectionists perceive and think about their social interactions would enhance the social disconnection model and provide one potential mechanism underlying the relation between perfectionism and maladaptive outcomes. Interpersonal perfectionists tend to make negative attributions about events; however, research thus far has not examined interpersonal perfectionists' attributions about personal social events. Additionally, the social disconnection model may be enhanced by examining the role of expectations about future social interactions. Low levels of positive

expectations and high levels of negative expectations for the future is indicative of hopelessness, which may also apply to social interaction expectations. Finally, based on the previous relation between attributions and expectations (see Weiner, 1985 for a review), these socio-cognitive factors should be examined in relation to one another in the social context. One way to examine attributions and expectations about social events is by measuring them in daily life.

ESM and the Social Disconnection Model

Although there is abundant research supporting the social disconnection model in perfectionism, much of the research is limited to single time points designs (Chang et al., 2008; Chen et al., 2015; Goya Arce & Polo, 2016; Nepon et al., 2011). While cross-sectional designs are useful in studying psychological phenomenon, the social disconnection model involves processes that occur based on social interactions, which occur in people's daily lives. The use of experience sampling methodology (ESM), which is when people report on mood, cognitions, or behaviors at multiple times points across days or weeks (Conner, Tennen, Fleeson, & Barrett, 2009), can be useful in studying processes in daily life. ESM can reduce retrospective reporting bias (Parkinson, Briner, Reynolds, & Totterdell, 1995), is more ecologically valid than collecting data in the lab, and captures within person variations (Bolger, Davis, & Rafaeli, 2003; Conner, Barrett, Tugade, & Tennen, 2007), such as the co-variation of attributions and mood. Therefore, using ESM allows for examining how attributions, expectations, and mood are related to each over time (i.e., within person variation; Bolger et al., 2003) while reducing retrospective biases (Parkinson et al., 1995).

Several studies have used a daily diary methodology to examine the social disconnection model where participants completed a measure of thoughts, feelings, and/or behaviors at a certain time point during the day for multiple days (Dunkley et al., 2003; Mackinnon et al., 2012; Sherry et al., 2014). Both Mackinnon et al. (2012) and Sherry et al. (2014) examined the role of dyadic conflict (i.e., reports of conflict by partner and self) on mood and behavior. Mackinnon et al. (2012) found that dyadic conflict mediated the relation between perfectionistic concerns (latent variable defined in part by SPP) and depressive symptoms. Sherry et al. (2014), on the other hand, examined how partner specific SPP predicted dyadic conflict. Results indicated that both self and partner reports of SPP predicted dyadic conflict. Another study examined how stress, coping, and perceived social support mediated the relation between self-criticism perfectionism (latent variable defined in part by SPP) and daily affect (Dunkley et al., 2003). Briefly, findings suggest that perfectionists experience higher negative affect when they perceive lower social support, blame themselves for a stressful event (i.e., general, academic, or social event), and when they perceive they will be criticized for how they handled the stressful event. The results from these three studies indicate that aspects of the social disconnection model, including dyadic conflict, appraisals about social events, and social support, can be assessed, and are informative, at the daily level.

However, these daily diary studies only had participants report on their behavior, emotions, or thoughts once per day, which makes it more difficult to examine temporal effects on social disconnection. Only one study has used multiple time points in a day to examine different processes in the social disconnection model (Mushquash & Sherry,

2012). Participants completed surveys twice a day that included measures of perceiving they are not meeting others' standards, perfectionistic self-presentation (i.e., presenting oneself as perfect and hiding imperfections), daily mood, and self-defeating behaviors (i.e., binge eating, procrastination, and interpersonal conflict). The researchers chose twice a day reporting to capture the first half and the second half of the day. Results indicated that SPP positively predicted depressive affect, perfectionistic self-presentation, perfectionistic discrepancies (i.e., perceiving one is not meeting others' standards), and self-defeating behaviors at the between-person level. At the within-person level, perfectionistic self-presentation positively predicted perfectionistic discrepancies and negative affect. Self-defeating behaviors also positively predicted negative affect. Additionally, the within-person model indicated that people who engaged in self-defeating behaviors one day had higher levels of perceived discrepancy the following day. Overall, these results indicate that the model may have a cyclical effect; specifically, that behaviors that occur on one day can affect next day perceptions (i.e., perceiving increased discrepancy).

Although the two time points a day used by Mushquash and Sherry (2012) were useful for capturing different parts of the day, within-person variation throughout the day was not specifically examined. For example, they did not look at whether perceiving a discrepancy in the afternoon predicted perfectionistic self-presentation in the evening. Furthermore, the researchers did not examine whether trait perfectionism moderated or played a mediation role in the within-person variation (e.g., whether people high on SPP had a stronger relation between perceived discrepancy and affect). Finally, this study did

not examine subjective or objective disconnection, which are key components of the social disconnection model.

Summary

Although there is evidence supporting the social disconnection model, there are several ways that research could be improved. Firstly, there is a lack of research focused on how interpersonal perfectionists think about their social interactions, which may be an integral piece in the social disconnection model. The model is based on the premise that perfectionists feel hopeless about their social relationships. However, research has not focused on cognitive factors core to hopelessness, such as attributions and expectations. Secondly, research focused on the social disconnection model in daily life is limited. Several studies have conducted daily diary studies, and one study used two time points to test mediation effects. However, the latter study did not analyze whether SPP was related to within-person variation, did not examine cognitive processes about social interactions, and did not directly examine social disconnection. Lastly, to date, no studies have examined the impact of socio-cognitive variables, such as event-specific attributions and social interaction expectations, on social disconnection in daily life. Therefore, research on interpersonal perfectionism and the relation to socio-cognitive factors in daily life would improve our understanding of how perfectionists perceive and navigate the social world.

Current Study

The purpose of the current study was to extend the social disconnection model by including perfectionists' perceptions of social experiences in daily life. The social

disconnection model posits that interpersonal perfectionism is linked to disconnection and poor outcomes, such as suicidal behavior, through two processes—interpersonal hostility and interpersonal sensitivity (Hewitt et al., 2006) – that lead to objective or subjective disconnection, respectively. To date, research has supported each of these processes; however, it has not focused on how perfectionists perceive their social interactions, such as causal appraisals associated with negative interactions, and how these perceptions may impact future expectations and subjective disconnection. Moreover, research has not examined perfectionists' perceptions of social interactions in daily life. Only one study to date has examined how perfectionists expect a social interaction will go (Laurenti et al., 2008); however, this study was limited to the lab setting and expectations for interacting with a stranger. Thus far, research has not focused on perfectionists' interpretations of their daily social world and how these interpretations may lead to feeling disconnected from others.

The aim of the present study was to include event-specific attributions and expectations for future interactions as components of the social disconnection model in daily life. More specifically, the goal was to examine whether interpersonal perfectionism predicts event-specific attributions about daily negative social interactions and expectations about future social events by assessing social behaviors and cognitions three times per day for 7 days. The purpose of using three time points within a day was to examine temporal effects of experiencing negative social interactions on social disconnection, and to examine the mediation effects of attributions and expectations. More specifically, the primary aim of the current study was to examine whether

attributions about negative social interactions and expectations about future social interactions explained the relation between interpersonal perfectionism and loneliness, which was used as an indicator of social disconnection.

Current Study Hypotheses

Hypothesis 1: To replicate previous findings, SPP was hypothesized to predict higher depressive and anxiety symptoms, trait loneliness, and positively predict trait negative attributional style.

Hypothesis 2: Also, replicating previous findings (Dunkley et al., 2003; Mushquash & Sherry, 2012), SPP was expected to predict daily measures of negative affect above and beyond trait measures of depressive and anxiety symptoms.

Hypothesis 3: Moreover, SPP was expected to predict daily measures of loneliness while controlling for trait loneliness.

Hypothesis 4: Based on previous research suggesting that interpersonal perfectionists are more likely to have negative attributional styles (Anshel & Mansouri, 2005; Blankstein & Winkworth, 2004; Chang & Sanna, 2001; Stoeber & Becker, 2008), SPP was expected to predict negative attributions about negative social events above and beyond trait negative attributional style.

Hypothesis 5: Based on findings from Hankin et al. (2005), it was expected that negative attributions would predict higher levels of daily negative mood.

Hypothesis 6: Additionally, when examining the relation between negative attributions and mood at a single time point (i.e., how they covary), SPP was expected to predict a stronger association between negative attributions and mood.

Hypothesis 7: SPP was hypothesized to predict higher negative expectations for future social interactions. Additionally, having higher negative expectations for future social interactions was expected to be positively related to negative affect.

Hypothesis 8: Based on the hopelessness theory (Abramson et al., 1989), repeated negative attributions about daily social interactions likely leads to feeling hopeless about one's relationships. Therefore, negative attributions about daily social interactions and expectations about future events were hypothesized to mediate the relation between SPP and loneliness measured at the next time point above and beyond loneliness at the concurrent time point (see Figure 1).

Hypothesis 9: Moreover, it was hypothesized that attributions about negative social events would predict higher negative expectations about future social interactions (Weiner, 1985).

CHAPTER II

METHODS

Participants

Participants (N = 160) were undergraduate students at the University of North Carolina at Greensboro. Fourteen participants were from psychology courses during the summer semester and were offered extra credit in their course for participation. The remaining participants (n = 147) were students in fall psychology courses who received partial research credit for their participation in the study through the subject pool. To ensure that there was sufficient representation in high scores on SPP, people high on SPP were recruited for the study during the fall semester. Specifically, some participants were contacted via email and invited to participate based on their scores on the SPP subscale of the Multidimensional Perfectionism Scale (MPS; Hewitt et al., 1991). Students who scored 62 or higher on SPP (.75 of a standard deviation above previous student sample means for SPP; previous study at UNCG: M = 53.25, SD = 11.72) were recruited for the study. The study was then open for any students to sign up through Sona after one month of recruiting people high on SPP.

Figure 2 depicts a flow chart that shows how participants were excluded from the study. Participants who completed less than 1/3 of the daily surveys were excluded from all analyses. Participants who had high levels of inconsistent responding were also excluded (see below for description on the inconsistent responding measure). Lastly, two

people were excluded for selecting the incorrect time-zone when signing up for the daily surveys.

Participants (N = 145) had a mean age of 20.1 (*SD* = 5.40, range: 18 to 56), 72% identified as female, 27% identified as male, and 1% declined to state their gender. Participants identified as Asian (8.33%), African-American (33%), Hispanic/Latino (15.4%), Native Hawaiian or other Pacific Islander (<1%), Middle Eastern/Arab (1.3%), White (46.2%), or "other" (1.9%). Participants could select more than one ethnic identity.

Measures

Between Person Measures

Perfectionism

The Multidimensional Perfectionism Scale (MPS; Hewitt et al., 1991) was used to measure perfectionism. The MPS is a 45-item scale with three subscales that capture different dimensions of perfectionism: SPP, self-oriented perfectionism (SOP), and other-oriented perfectionism (OOP). Sample item from the SPP subscale is "I find it difficult to meet others' expectations of me". Items are rated on a 7-point scale from "strongest disagreement" (1) to "strongest agreement" (7), such that higher scores indicate greater perfectionism. The subscales of the MPS had good internal consistency (SPP $\alpha = .88$; OOP $\alpha = .76$; SPP $\alpha = .87$). See Appendix 1 for all between-person measures.

Attributional Styles

Trait attributional style was measured with the Attributional Style Questionnaire (ASQ; Peterson et al., 1982). The ASQ measures dispositional attributional styles using attributions about 12 scenarios. Participants were instructed to read the scenario, think of

one major cause for the situation, and provide that cause as an open-ended response. Then participants were asked to rate the cause for the situation using 4 response items that were rated on a 7-point scale. For example, "Is the cause of your negative reaction due to something about you or to something about other people or circumstances? (Totally due to other people or circumstances "1" to Totally due to me "7"). Three response items captured ratings about whether the cause of the event is stable, internal, and global. The last response item captures the importance of the scenario to the participant. Half of the scenarios are good situations and half are bad situations. Half are also interpersonal events and half are achievement-related events.

The ASQ has 12 subscales. At the highest level, items assessing internality, stability, and globality are combined into two subscales, one for good situations and one for bad situations. These subscales are called ASQ Good and ASQ Bad, respectively. Higher scores on ASQ Good are indicative of an adaptive attributional style for positive events. Higher scores on ASQ Bad, in contrast, suggest a maladaptive attributional style for negative events.

Subscales for assessing internality, globality, and stability alone about positive and negative events were also created by summing the responses assessing each of these attributional style scores across positive and negative events. These subscales are called Internal Good, Global Good, Stable Good and Internal Bad, Global Bad, and Stable Bad. Lastly, four subscales were created to measure the attributional style for good and bad interpersonal events and good and bad achievement events by summing the scores of items assessing internality, globality, and stability for respective events. These subscales

are called Interpersonal Good, Interpersonal Bad, Achievement Good, and Achievement Bad. The ASQ subscales had good internal consistency (α = .80 to .85 across subscales).

Loneliness

Trait loneliness was measured with the University of California, Los Angeles (UCLA) Loneliness Scale Version 3 (Russell, 1996). The UCLA Loneliness Scale is a 20 item measure that assesses trait loneliness. Items are rated on a 4-point scale from "never" (1) to "always" (6), such that higher scores indicate higher levels of loneliness. The UCLA Loneliness had good internal consistency (α = .94).

Depression and Anxiety

The Mini-Mood and Anxiety Symptom Questionnaire (Mini-MASQ) is a 26 item self-report scale that measures negative affect using three subscales—Anxious Arousal (AA; e.g., feeling short of breath, faint), General Distress (GD; e.g., feeling worthless and on edge), and Anhedonic Depression (AD; e.g., feeling like things are not enjoyable; Casillas & Clark, 2000). Items are rated on a 5-point scale from "not at all" (1) to "extremely" (5). The subscales had good internal consistency (AA α = 85; GD α = .92; AD α = .88).

Inconsistency Items

Ten items were used to assess for inconsistency in responding. Five of the items were presented at the beginning of the initial survey and the five items that corresponded to the original items were presented at the end of the survey. For example, "I enjoy the company of my friends" was presented at the beginning and "I like to spend time with my friends" was presented at the end of the survey. The items were rated on a 5-point scale

"not at all true" (1) to "very true" (5). The difference scores for the matched items were summed, and participants were excluded if they had scores of 7 or higher (i.e., 2 people were excluded; see Figure 2).

Within-Person Measures (ESM Items)

Negative Social Interactions and Event-Specific Attributions

Participants were asked whether they had interacted with anyone in the past three hours. If they responded yes, then they were asked "were any of those interactions negative (e.g., someone got mad at me, I got annoyed with someone, I felt rejected, criticized, ignored, left out, someone didn't answer my text, etc.)?", which was rated no = 0; yes = 1. If they responded yes, they were asked about their attributions about the most negative event. The 4 response items from the ASQ (Peterson et al., 1982) were used to assess attributions about daily social events. Items assessed whether the participant perceived the causes of the event is stable, internal, and global, and how important the event was to them (see Appendix 2 for ESM items). These items were completed on a 7-point scale. A composite of the three items (stability, internality, and globality) was created by taking the mean of the item scores. Multilevel confirmatory factor analysis (MCFA) was used to examine the reliability of the three-item scale assessing attributions (Bolger & Laurenceau, 2013). Results indicate that the items were reliable for examining between-person variation across time ($\omega = .706$).

Expectations

Expectations for future social interactions were measured with three items that were used in a previous daily diary study in our lab. The items assess both positive

expectations and negative expectations. These items were rated on a 5-point scale from "not at all" (1) to "extremely" (5). Based on results from a MCFA, the scale for expectations was reliable (ω = .706).

Measure of Loneliness

Loneliness was assessed using items from the UCLA Loneliness Scale (Russell et al., 1980). Six items were selected based on a previous study that used these items in a daily diary study (Hawkley, Preacher, & Cacioppo, 2010). Sample items for assessing perceived isolation were "I could not find companionship when I wanted it"; "I felt like I didn't belong"; "I felt like no one really knows me"; and "I felt lonely". The wording of the stem was changed to capture perceived isolation since the last survey completed (i.e., "In the past three hours, to what extent did you feel…"). The loneliness scale was reliable (ω = .886).

Mood Items

Mood was captured using items from the Profile of Mood States (Shacham, 1983). The specific items selected were recently used in a previous ESM study (Eddington et al., 2016). Items assessed positive and negative affect and were rated on a 7-point scale from "not at all" (1) to "very much" (7) with higher scores indicating higher levels of mood. The positive affect items (i.e., happy, confident, satisfied, good) were correlated with each other between 0.79 to 0.87; therefore, they were combined into a composite, Positive Affect (PA), by taking the average rating across items. The negative affect items (i.e., sad, feeling like one's emotions are out of control, anxious, and

irritable) were analyzed separately because the bivariate correlations were not as high compared to the positive affect items (see Table 1).

Procedure

Participants initially completed a screening survey to determine that they had a smartphone and that it was compatible with SurveySignal, which was the platform used to disseminate the surveys. After completing the screening survey, participants completed informed consent and were provided an electronic copy of the consent form. Participants then registered and verified their phone number in SurveySignal and then were routed to Qualtrics where they completed the between-person measures (i.e., demographics, MPS, ASQ, Mini-MASQ, and UCLA Loneliness Scale). After completing the between-person measures, they were provided with instructions on how to complete the daily surveys and how often. Participants completed a brief quiz, with the correct responses provided as feedback, to increase understanding of the study. Participants were also told that they will receive email reminders to complete the surveys.

Qualtrics links for the survey were sent to the participants via text message through SurveySignal three times per day for seven days on a fixed scheduled--at 10:00 am, 4:00 pm, and 9:00 pm. The seven days of daily surveys always began the day following when the participant registered their phone number in SurveySignal; therefore, every participant received their first survey at 10:00 am.

The surveys were also time-based (Bolger et al., 2003); specifically, the links to the surveys were active for two hours to ensure that participants completed them within a specified time period. Of note, approximately 35% of participants selected the Central

time zone (instead of the Eastern time zone) while registering their phone number in SurveySignal; therefore, they received their surveys an hour later, at 11:00 am, 5:00 pm, and 10:00 Eastern Standard Time (EST). The survey links still remained active for 2 hours and surveys were spaced equally to participants who completed the surveys in EST. Two participants selected the Pacific time zone while registering in SurveySignal; therefore, they were excluded from analyses because their survey schedule was vastly different from other participants (i.e., 1:00 pm, 7:00 pm, and 12:00 am).

This procedure was based on an interval-contingent schedule (Christensen, Barrett, Bliss-moreau, Lebo, & Kaschub, 2003; Nezlek, 2001). Interval-contingent signaling is appropriate for studying more frequent events, such as interactions with other people. Interval-contingent signaling requires people to reconstruct what has happened since the last report (Bolger et al., 2003; Christensen et al., 2003); therefore, having time points relatively close together can reduce difficulty with recall. Participants reported on whether they had social interactions, and then reported about a specific event (e.g., negative social event).

To ensure that the daily survey was equivalent length if participants did not have social interactions in the past 3 hours or a negative social interaction, branching questions were used. If participants responded that they did not have a social interaction, they were asked whether they experienced general positive and negative events. Moreover, if participants reported that their social interactions were not negative, participants were then asked if they had any positive social interactions. Therefore, based on branching, the survey was approximately the same length whether participants reported having a

negative social interaction or not. For the purpose of the current study, only data about negative social interactions were included in analyses.

Similar to Mushquash and Sherry (2012), participants completed the surveys three times a day for 7 days to provide enough time points to measure within- and between-person variability. To increase compliance, participants were assigned research credit for the initial survey and separate credit for completing approximately 75% of the surveys (i.e., 15 of the 21 surveys). The study had a decent response rate (approximately 84.76%; see Figure 2 for information about compliance and participant exclusion).

CHAPTER III

ANALYTIC PLAN

Multilevel models were used to test the hypotheses in the current study. Multilevel models are appropriate to use with ESM data (Bolger et al., 2003) to capture both the within- and between-person variation. All within-person variables were group mean centered and between-person variables (MPS subscales, UCLA, MASQ subscales, and ASQ subscales) were standardized in the models. Additionally, SOP was included in the models with SPP. SOP measures the tendency to hold personally high standards (Hewitt & Flett, 1991b); SPP, in contrast, measures the perception that others' have excessively high standards and concerns about not living up to those standards. Therefore, consistent with other studies of perfectionism, both were included in models to examine the unique effects of the interpersonal aspects of perfectionism (e.g., perception of not living up to others' standards). In the models, daily variables were Level 1 variables (i.e., attributions, expectations, loneliness, mood). SPP, SOP, ASQ Good, ASQ Bad, UCLA, and MASQ subscales were Level 2 variables. The models were estimated using Mplus 8.

The main effect of perfectionism predicting Level 2 variables (ASQ Good, ASQ Bad, UCLA, and MASQ subscales) was analyzed to replicate previous studies (Hypothesis 1). To test Hypothesis 2 negative affect mood items and PA were regressed on SPP and SOP while controlling for the MASQ subscales. For Hypothesis 3, daily

loneliness was regressed on SPP and SOP. The UCLA was included in this model to examine whether perfectionism predicted daily loneliness above and beyond trait loneliness. To test Hypothesis 4, attributions about negative social interactions was regressed on SPP and SOP while controlling for ASQ Bad. For Hypothesis 7, expectations for future social interactions was regressed on SPP and SOP. These results were interpreted using a cutoff of $p < 0.05$.

To examine Hypothesis 4, negative affect items, PA, and loneliness were regressed on attributions. Next, to examine whether SPP predicts the covariation of daily attributions and mood at a single time point (Hypothesis 6), a cross-level interaction between SPP and attributions predicting mood was analyzed. In these models, ASQ Bad was included as a covariate to examine the unique effects of event-specific attributions. These results were interpreted using a cutoff of $p < 0.05$.

A two-level path analysis was used to test whether attributions about negative social interactions and expectations for future interactions explains the relation between SPP and loneliness at the next time point over and above loneliness at the concurrent time point (Hypothesis 8; see Figure 1; Asparouhov & Muthén, 2007). Following recommendations by Muthen (1994), the appropriateness of specifying the model as multilevel was decided based on examining the intraclass correlations, fitting the model at the within level, fitting the model at the between level, and fitting the model at the within and between level (and examining fit for each model). Fit was examined using model chi-square (χ^2), Root Mean Squared Error of Approximation (RMSEA), Comparative Fit Index (CFI), the Akaike Information Criterion (AIC), the Bayesian

Information Criterion (BIC), and Log-likelihood values. Briefly, the Chi-square is an estimate of poor fit compared to the baseline model, such that higher numbers represent poorer fit. RMSEA is an index that measures the degree of misspecification of the model. Values .05 to .08 suggest decent fit; values less than .05 suggest close fit (Browne & Cudeck, 1993). CFI measures misspecification of the model compared to the independence model, and values greater than .90 suggest reasonably good fit (Hu & Bentler, 1999). Smaller AIC and BIC values suggest better fit and differences greater than four in AIC suggest evidence of improved fit (Burnham & Anderson, 2002; Schwarz, 1978). AIC was used to compare model fit between models when they were nested. Lastly, higher Log-likelihood values indicate better fit.

Multilevel models were specified for both within and between levels. Specifically, at Level 1 expectations about future social interactions was regressed on attributions (Hypothesis 9), and loneliness at the next time point was regressed on attributions, expectations, and loneliness at the concurrent time point. At Level 2, the latent variable random intercept for attributions and expectations was regressed on SPP and SOP, the random intercept for expectations was regressed on attributions, and the random intercept of loneliness at the next time point was regressed on attributions, expectations, and loneliness at the concurrent time point. The model was run in Mplus 8 with maximum likelihood estimation and was modeled after syntax from the Mplus 8 User's Guide (Muthen & Muthen, 1998-2017). Although the bootstrapping method is typically recommended for examining indirect effects (Hayes, 2013), two-level analyses in Mplus

8 are not currently compatible with bootstrapping method. Therefore, indirect effects for the path model were estimated using Sobel test (1982).

CHAPTER IV

RESULTS

Descriptive Statistics

Table 1 and Table 2 present the means, standard deviations, and bivariate correlations for the ESM variables and the between-level variables, respectively. Table 2 also shows the number of participants with completed data for each between-person measure. Briefly, two people were missing data for SPP and SOP subscales; three people were missing data for the MASQ subscales, ASQ subscales, and UCLA. Table 1 also presents the intra-class correlations (ICC's) for the ESM items. The ICC's suggest that multilevel modeling is appropriate.

Of note, in the daily survey, participants were asked whether they had a social interaction in the past three hours, and if so, if that interaction was negative. Therefore, reporting on negative social interactions was conditional. All together there were 411 observations of negative social interactions (and attributions about negative social interactions) across days, across people. This number of observations is lower than the 2,627 observations for expectations for future social interactions and mood items. On average, people had 2.76 negative social interactions (SD = 2.63) that ranged from 0 to 14 negative social interactions. The proportion of negative social interactions reported (compared to total surveys completed) per person ranged from 0 to .82. Twenty-four participants had 0 negative social interactions.

Participants were recruited from two different times of the year; therefore, the semester (i.e., summer or fall) people participated was regressed on study variables. Briefly, SPP and AA were significantly higher during the fall semester than over the summer. The other study variables were not significantly different across semesters[1]. Higher scores on SPP and AA during the fall semester were expected because participants high on SPP were recruited for the study. Because there were only 14 people who participated during the summer, semester was not controlled for in the models.

Perfectionism and Between-Person Variables

To replicate previous studies and test Hypothesis 1, the subscales of the MASQ (GD, AA, and AD), UCLA scale, and the ASQ subscales (ASQ Good and ASQ Bad) were regressed onto SPP and SOP. Both SPP and SOP were included in the regression models to assess for unique aspects of these subscales on the trait level variables. SPP significantly predicted GD, AA, AD, UCLA, ASQ Good, and ASQ Bad (see Table 3). Therefore, people higher on SPP had higher levels of general distress, anxious arousal, anhedonic depression, loneliness, and tended to make more internal, global, stable attributions about negative events. Moreover, people high on SPP tended to make fewer internal, global, stable attributions about positive events. In contrast, SOP predicted lower scores on GD, AD, UCLA, and higher scores on ASQ Good. SOP did not predict AA and ASQ Bad (see Table 3).

[1] At the between-person level, GD (b = 1.51, *SE* = 1.66, *p* = 0.37), AD (b = 0.96, *SE* = 2.01, *p* < 0.00), UCLA (b = 2.55, *SE* = 4.05, *p* = 0.53), SOP (b = -0.62, *SE* = 4.18, *p* = 0.88), ASQ Good (b = -0.45, *SE* = 0.50, *p* = 0.37), and ASQ Bad (b = 0.96, *SE* = 0.53, *p* = 0.07) were not significantly different between semesters. At the within-level, attributions (b = -0.29, *SE* = 0.24, *p* = 0.22), expectations (b = 0.03, *SE* = 0.16, *p* = 0.88), and loneliness (b = 0.23, *SE* = 0.24, *p* = 0.22) were not significantly different between semesters.

ESM Items at a Single Time Point

Within-Person Main Effects

To test Hypothesis 5, negative affect mood items and PA were regressed on the daily attributions composite (mean of internal, stable, and global causal attributions) at the same time point (see Table 4). People who had negative attributions about negative social events tended to have elevations in sadness and loneliness. To examine how individual attribution items (i.e., items assessing internal, stable, global causal attributions, and ratings about the importance of negative social events) relate to mood see Table 1.

Negative affect mood items and PA were also regressed on expectations about future social interactions at the same time point (Hypothesis 7). In general, having negative expectations about future social interactions predicted higher negative affect and lower positive affect (see Table 4).[2]

Perfectionism and Within-Level Effects (Main Effects and Cross-Level Interaction)

To test Hypothesis 2, negative affect mood items and PA were regressed on SPP and SOP to assess the main effect of perfectionism on daily mood while controlling for the MASQ subscales (GD, AA, and AD)[3]. People high on SPP had higher negative affect

[2] Of note, results using the Positive Affect composite (mean of the positive affect mood items) were similar to the results when the positive affect mood items were examined separately across all analyses.

[3] MASQ subscale GD significantly predicted PA (B = -0.46, SE = 0.10, $p < 0.00$), sadness (B = 0.58, SE = 0.11, $p < 0.00$), feeling like one's emotions are out of control (B = 0.49, SE = 0.12, $p < 0.00$), anxious (B = 0.61, SE = 0.10, $p < 0.00$), and irritable (B = 0.54, SE = 0.12, $p < 0.00$). MASQ subscale AD significantly predicted PA (B = -0.25, SE = 0.09, p = 0.01) and feeling anxious (B = -0.22, SE = 0.10, p = 0.01). MASQ subscale AA did not predict daily mood.

(see Table 4). Additionally, for Hypothesis 3, daily loneliness was regressed on SPP and SOP while controlling for the UCLA[4]. SPP predicted higher levels of loneliness while controlling for trait loneliness. SOP, in contrast, predicted lower levels of negative affect (sad and irritable) and loneliness (controlling for MASQ subscales and trait loneliness, respectively).[5]

To examine the main effects of perfectionism predicting the socio-cognitive variables, the attributions composite was regressed on SPP and SOP (Hypothesis 4) while controlling for ASQ Bad. Neither SPP nor SOP significantly predicted the attributions composite (SPP: $B = 0.07$, $F(3, 117) = 0.45$, $p = 0.66$; SOP: $B = 0.08$, $F(3, 117) = 0.45$, $p = 0.65$). However, ASQ Bad significantly predicted the attributions composite ($B = 0.38$, $F(3, 117) = 3.14$, $p = 0.00$). To further examine the impact of perfectionism on attributions, the individual attribution items (internal, stable, and global) were regressed onto SPP and SOP whiling controlling for ASQ Bad. SPP did not significantly predict internal attributions ($B = 0.22$, $F(3, 117) = 1.43$, $p = 0.15$), stable attributions ($B = -0.14$, $F(3, 117) = -0.76$, $p = 0.44$), or global attributions ($B = 0.07$, $F(3, 117) = 0.40$, $p = 0.69$)[6]. SOP also did not significantly predict any attributions (internal: $B = -0.16$, $F(3, 117) = -0.96$, $p = 0.34$; stable: $B = 0.10$, $F(3, 117) = 0.58$ $p = 0.57$; global: $B = 0.18$, $F(3, 117) = 1.04$, $p = 0.30$). ASQ Bad significantly predicted internal attributions ($B = 0.30$, $F(3, 117)$

[4] UCLA Loneliness scale significantly predicted daily loneliness (while controlling for perfectionism; $B = 0.05$, $SE = 0.08$, $p < 0.00$).
[5] Without controlling for MASQ subscales, SPP also predicted the PA composite ($B = -0.36$, $SE = 0.10$, $p < 0.00$). SOP also predicted the PA composite ($B = -0.25$, $SE = 0.11$, $p = 0.02$).
[6] Without controlling for ASQ BAD, SPP significantly predicted internal attributions ($B = 0.34$, $SE = 0.14$, $p = 0.02$).

= 2.40, p = 0.02) and stable attributions (B = 0.39, F(3, 117) = 2.12, p = 0.03) but not global attributions (B = 0.21, F(3, 117) = 1.32, p = 0.19).

To test Hypothesis 7, whether perfectionism predicted daily negative expectations for social interactions, expectations was regressed on SPP and SOP. SPP positively predicted expectations (B = 0.32, F(2, 143) = 6.62, p < 0.00) and SOP negatively predicted expectations (B = -0.15, F(2, 143) = -2.80, p = 0.00). Results suggest that people high on SPP had higher levels of negative expectations about their future social interactions. People high on SOP, in contrast, had lower levels of negative expectations.

To test Hypothesis 6, the moderating effect of perfectionism on the covariation of within-person variables was examined by regressing the slope of negative attributions and mood items on SPP and SOP (ASQ Bad was included in models as a covariate)[7]. SOP positively predicted the slope of negative attributions and sadness (see Table 4 and Figure 3) such that as SOP scores increased, the association between making negative attributions and sadness became stronger. However, neither SPP nor SOP predicted the slope of negative attributions and the other mood items (see Table 4).

Trait Attributions and Event-Specific Attributions

When the ASQ Bad subscale was included as a covariate in models examining how SPP predicted the slope of negative attributions and mood items, ASQ Bad significantly predicted two slopes that are worth noting. Interestingly, ASQ Bad predicted the slope of event-specific attributions and emotions feeling out of control (B = 0.11, F(2,

[7] Results were not different when ASQ Bad (trait attributional style) was not included as a covariate in the model.

117) = 3.03, $p < 0.00$) and the slope of attributions and PA (B = -0.06, F(2, 117) = -2.82, p = 0.01). For people who tend to make negative attributions in general, making event-specific negative attributions was associated with higher levels of feeling like one's emotions are out of control, and lower levels of positive affect.

Time-Lagged Analyses (Main Effects and Path Analysis)

To examine the temporal effects of attributions about negative social interactions and expectations, the data was analyzed using time-lagged analyses where loneliness at the next time point was regressed on attributions and expectations at the current time point (controlling for current loneliness). Neither attributions nor expectations predicted loneliness at the next time point (attributions: B = 0.02, F(3, 101) = 0.06, p = 0.81; expectations: B = 0.05, F(3, 101) = 0.75, p = 0.46).[8]

Path Analysis with Loneliness at the Next Time Point

Following Muthen's (1994) recommendation for multilevel modeling, within-person and between-person models were estimated separately using covariance matrices. Then the hypothesized model was tested, and fit was examined for the three models.

Within-Person Model

Using the pooled within-person covariance matrix, the path model was estimated at the within-person level. Because perfectionism (SPP and SOP) are not within-person variables, they were not included in this model. The model included two paths from attributions to loneliness at the following time point—one direct path and one indirect

[8] Expectations significantly predicted loneliness at the following time point when not controlling for loneliness at the concurrent time point (B = 0.28, $p < 0.00$). However, when not controlling for concurrent loneliness, attributions did not predict loneliness at the next time point (B = 0.08, p = 0.23).

path through expectations. Loneliness at the concurrent time point to attributions and expectations was included in the model. The within-person model had poor fit based on fit indices: χ^2 (df = 1) = 623.35, p < 0.00, RMSEA = 0.47 [Confidence Interval (CI): 0.44; 0.50)], CFI = 0.78, SRMR = 0.15, AIC = 11,717.40, and BIC = 11,753.15, Log-likelihood = -5,541.02.

Between-Person Model

The model was estimated at the between-person level only using a between-person covariance matrix, which ignored the nested-nature of the data. Because attributions, expectations, loneliness (at both time points) are within-level variables, they were transformed into between-level variables for the purpose of this model by creating cluster means (mean for each person across days). The between-person model had poor fit based on fit indices: χ^2 (df = 7) = 521.39, p < 0.00, RMSEA = 0.72 (CI: 0.67, 0.77), CFI = 0.24, SRMR = 0.27, AIC = 3,034.81, BIC = 3,072.31, and Log-likelihood = -1,243.71. This suggests that the data does not fit well at only the between-level, and when ignoring the nested-nature of the data.

Hypothesized Model (Multilevel Model)

To examine whether attributions about negative social interactions and expectations about future social interactions mediates the relation between perfectionism and loneliness at the following time point, a two-level path analysis was analyzed. The hypothesized model (Hypothesis 8-9; Model 1; Figure 5) had poor fit based on fit indices: χ^2 (df = 4) = 310.19, p < 0.00, RMSEA = 0.16, CFI = 0.72, $SRMR_{within}$ = 0.14, $SRMR_{between}$ = 0.21, AIC = 14,163.84, BIC = 14,362.08, Log-likelihood = -6,796.99.

Overall, results indicate that fit was poor for the within-person only model, the between-person only model, and the multilevel model.

At the within-person level of the multilevel model, the path from attributions to loneliness at the following time point and the path from expectations to loneliness at the following time point were not significant when controlling for loneliness at the concurrent time point (see Table 5). However, attributions predicted concurrent expectations.

At the between-person level, neither SPP nor SOP predicted attributions (see Table 5). SPP, SOP, and attributions significantly predicted expectations. Consistent with the results from the time-lagged regression analyses, neither expectations nor attributions predicted loneliness at the next time point while controlling for loneliness at the concurrent time point. Loneliness at the concurrent time point significantly predicted loneliness at the next time point.

Additionally, the indirect effect of SPP predicting loneliness at the following time point through attributions (B = 0.00, SE = 0.00, p = 0.79) and expectations (B = 0.01, SE = 0.01, p = 0.25) was not significant. The indirect effect of SOP predicting loneliness through attributions (B = 0.00, SE = 0.00, p = 0.99) and expectations (B = 0.00, SE = 0.00, p = 0.79) was also not significant. Lastly, attributions did not predict loneliness at the following time point through expectations (B = 0.02, SE = 0.013, p = 0.26).

Incremental Validity Model

In the second model examined (Model 2; Figure 5), several nonsignificant paths were removed from the model—SPP and SOP predicting attributions, and attributions

predicting loneliness at the next time point. Model 2 also had poor fit based on fit indices: χ^2 (*df* = 8) = 179.20, *p* < 0.00, RMSEA = 0.23, CFI = 0.45, $SRMR_{within}$ = 0.11, $SRMR_{between}$ = 0.26, AIC = 4,261.42, BIC = 4,364.74, Log-likelihood = -2,041.61. However, the AIC was lower for Model 2 than Model 1, suggesting improved fit.

With regards to standardized path estimates in Model 2, results were similar to Model 1. SPP, SOP, and attributions significantly predicted expectations (see Figure 5 and Table 5). However, expectations did not predict loneliness at the next time point. The indirect effects within the model were also not significant. Neither SPP or SOP predicted loneliness through expectations (SPP: *B* = -0.01, *SE* = 0.04, *p* = 0.90; SOP*: B* = 0.00, *SE* = 0.02, *p* = 0.90). Attributions did not predict loneliness at the next time point through expectations *(B* = -0.01 *SE* = 0.06, *p* = 0.89).

Post-Hoc Analyses

Two-Level Path Analysis at Single Time Point

Results from the time-lagged analyses suggest that attributions and expectations did not significantly predict loneliness at the next time point above concurrent loneliness. Based on these nonsignificant main effects, it would not be expected that these cognitive processes would explain the relation between perfectionism and loneliness at the next time point. However, it is unknown whether the nonsignificant findings are due to the time-lagged nature of the analyses (cognitive processes predicting loneliness at the next time point) or whether these cognitive processes do not explain the relation between perfectionism and loneliness in general. Therefore, to examine the role attributions and expectations play in the relation between perfectionism and loneliness, another two-level

path analysis was estimated where attributions, expectations, and loneliness were measured at the same time point (Model 3; Figure 6).

In terms of fit indices, the two-level path analysis had decent fit: χ^2 (df = 2) = 25.55, p < 0.00, RMSEA = 0.06, CFI = 0.95, $SRMR_{within}$ = 0.00, $SRMR_{between}$ = 0.02, AIC = 10,802.57, BIC = 10,870.49, Log-likelihood = -5,374.29. The difference in SRMR values between the within and between-level suggest that the models fits better at the within level than the between level.

At the within-person level of Model 3, the path from attributions to expectations was statistically significant, the path from expectations to loneliness was statistically significant, and the path from attributions to loneliness was statistically significant (see Table 6). At the between-person level, similar to the previous models, neither SPP nor SOP significantly predicted negative attributions but SPP and SOP did predict expectations (see Table 6). Also similar to previous models, negative attributions significantly predicted expectations, which in turn predicted loneliness.

With regards to indirect effects, expectations mediated the relation between SPP and loneliness *(B* = 0.18, *SE* = 0.07, *p* = 0.01). The indirect effect of SOP predicting loneliness through expectations was not significant *(B* = -0.12, *SE* = 0.07, *p* = 0.11). Attributions did not explain the relation between SPP nor SOP and expectations (SPP*: B* = 0.08, *SE* = 0.07, *p* = 0.20; SOP*: B* = 0.01, *SE* = 0.07, *p* = 0.91). Attributions did not explain the relation between perfectionism and loneliness (SPP*: B* = 0.00, *SE* = 0.03, *p* = 0.93; SOP*: B* = 0.00, *SE* = 0.00, *p* = 0.90). Lastly, the indirect effect of attributions

predicting loneliness through expectations was significant (B = 0.38, SE = 0.20, p = 0.05).

Expectations Mediation Model (Single Time Point Analysis)

In the next model (Model 4), attributions were removed from the model due to the nonsignificant paths from SPP and SOP to attributions. Based on the fit the model had decent to excellent fit: χ^2 (df = 2) = 6.13, p = 0.05, RMSEA = 0.03, CFI = 0.99, $SRMR_{within}$ = 0.00, $SRMR_{between}$ = 0.03, AIC = 9,569.77, BIC = 9,659.88, Log-likelihood = -4,767.26.

At the within level, expectations significantly predicted loneliness (see Table 6; Figure 7). Consistent with the previous model, at the between level, SPP positively predicted expectations and SOP negatively predicted expectations, which in turn significantly predicted loneliness. Similar to the previous model, expectations mediated the relation between SPP and loneliness (B = 0.24, SE = 0.04, p < 0.00). In contrast with the previous model, expectations mediated the relation between SOP and loneliness (B = -0.12, SE = 0.04, p = 0.01). Results suggest that socially prescribed perfectionists have higher negative expectations for future social interactions, which in turn explains higher levels of loneliness. People high on SOP, in contrast, have lower negative expectations, and in turn have lower levels of loneliness.

Path Analysis with Loneliness as the Mediator (Lagged Analysis)

In the current study, attributions about negative social interactions were expected to predict loneliness at the next time point; however, it is possible that this relationship

occurs in the opposite direction. Specifically, it is possible that when people feel lonely, they are more likely to make negative attributions about social events and have lower expectations for future social interactions (Cacioppo & Hawkley, 2009; Peplau & Perlman, 1979). Therefore, a fifth two-level path analysis was examined where attributions and expectations were measured at the following time point (Model 5; Figure 8). It was expected that loneliness would mediate the relation between SPP and attributions and expectations at the following time point (while controlling for concurrent attributions and expectations). Similar to the hypothesized model (Model 1), this model had poor fit χ^2 (df = 16) = 144.13, p < 0.00, RMSEA = 0.14, CFI = 0.67, $SRMR_{within}$ = 0.13, $SRMR_{between}$ = 0.25, AIC = 4,413.50, BIC = 4,516.75, and Log-likelihood = -2,108.68.

With regards to the standardized path coefficients at the within and between level, loneliness did not significantly predict attributions (within: B = -0.18, SE = 0.45, p = 0.67; between: B = 0.97, SE = 0.30, p =0.78) or expectations (within: B = -0.24, SE = 0.11, p = 0.82; between: B = 0.97, SE = 0.51, p =0.61) while controlling for concurrent attributions and expectations. Similar to previous models, SPP and SOP differently predicted loneliness.

Loneliness Mediation Model (Single Time Point Analysis)

A similar model was analyzed using data at the same time points. In Model 4, expectations and loneliness were measured at the same time point; therefore, the data is correlational and the direction of causality between expectations and loneliness is unclear. An alternative model was analyzed (Model 6; Figure 9) to examine whether

loneliness mediated between perfectionism and expectations measured at the same time point. This model had excellent, and comparable, fit to Model 4: χ^2 (df = 2) = 6.13, RMSEA = 0.03, CFI = 0.99, $SRMR_{within}$ = 0.00, $SRMR_{between}$ = 0.03, AIC = 9,569.29, BIC = 9,659.40, Log-likelihood = -4,767.26. Similar to Model 4, all the paths were significant from SPP and SOP to loneliness (SPP: B = 0.54, SE = 0.08, p < 0.00; SOP: B = -0.31, SE = 0.08, p < 0.00), and expectations to loneliness (B = 0.77, SE = 0.04, p < 0.00). Moreover, the indirect effects of SPP and SOP predicting loneliness through expectations were also significant (SPP: B = 0.25 SE = 0.05, p < 0.00; SOP: B = -0.15, SE = 0.04, p < 0.00).

Perfectionism and Negative Social Interactions

Based on previous research on SPP and attributions, it was surprising that SPP did not predict daily negative attributions about social events. To further examine whether SPP was related to daily negative social events, and just not attributions about the events, the number of negative social interactions reported was regressed onto SPP and SOP. For analyses, a variable representing frequency of negative social interactions was created by calculating a proportion—total number of negative social interactions reported across days divided by the total number of surveys completed—for each person. SPP significantly predicted a higher proportion of negative social interactions across surveys (B = 0.18, F(2, 130) = 4.11, p = 0.04). SOP, in contrast, did not significantly predict the proportion of negative social interactions (B = 0.04, F(2, 143) = 0.20, p = 0.07). This is consistent with previous research that suggests that interpersonal perfectionism is related to higher daily conflict (Mackinnon et al., 2012; Sherry et al., 2014).

Additionally, to examine whether SPP was related to perceived importance of negative social interactions, the importance ratings of the negative social interactions were regressed on SPP and SOP. Neither SPP nor SOP significantly predicted importance ratings of the negative social interactions (SPP: $B = 0.12$, $F(6, 117) = 0.73$, $p = 0.46$; SOP: $B = 0.16$, $F(6, 117) = 0.87$, $p = 0.39$).

Perfectionism and ASQ Subscales

To further examine the relation between perfectionism and trait attributional styles, Table 7 shows the bivariate correlations between SPP, SOP, and the ASQ subscales. The ASQ subscales measure the tendency to make internal, stable, global attributions about positive and negative social and achievement events. SOP was positively correlated with higher internal, global, and stable attributions for positive events (Internal Good), and positively correlated with attributional style for positive social (Interpersonal Good) and achievement events (Achievement Good). SPP was positively correlated with internal and global attributions about negative events (Internal Bad and Global Bad), and positively correlated with attributional style for negative social events (Interpersonal Bad). Overall, people high on SOP tended to have an adaptive trait attributional style whereas people high on SPP tended to make maladaptive attributions about negative events (i.e., negative attributional style).

CHAPTER V

DISCUSSION

The purpose of the current study was to examine how socio-cognitive factors, such as attributions about negative social interactions and expectations for future social interactions, explained variations in loneliness in interpersonal perfectionists. Contrary to predictions, results suggest that event-specific attributions about negative social interactions were not a consistent predictor of loneliness (at the same time point or next time point); however, event-specific negative attributions did predict negative expectations for future social interactions. Moreover, negative expectations about future social interactions predicted concurrent loneliness, and also explained the relation between interpersonal perfectionism and loneliness at the same time point. However, due to the correlational nature of this finding, the causal direction is unclear. Despite the unclear direction, these results extend the social disconnection model by providing evidence that socio-cognitive factors, such as expectations, may help explain how perfectionists think about their social interactions. Moreover, the findings provide support for a consistent relation between expectations and social disconnection in interpersonal perfectionists. The findings have interesting treatment implications, which are discussed below.

Perfectionism and Social Functioning

One aim of the current study was to examine social functioning in daily life for interpersonal perfectionists. Findings from the current study suggest that people high on interpersonal perfectionism had a larger proportion of daily negative social interactions, which fits with previous research that indicates perfectionism is associated with higher daily conflict (Mackinnon et al., 2012; Sherry et al., 2014) and negative social interactions (Dunkley et al., 2006; Nepon et al., 2011). It is important to note that the current study examined perceived negative social interactions broadly (e.g., someone got mad at me, I got annoyed with someone, I felt rejected, felt criticized, ignored, left out, or someone didn't answer my text) instead of measuring objective negative interactions or conflict. The purpose of the study was to measure subjective negative interactions to better understand perceptions of social stress and interpersonal sensitivity, which is one of the proposed mediating pathways in the social disconnection model. In general, it appears that interpersonal perfectionists tend to have a higher number of perceived negative interactions with others in daily life.

With regards to social disconnection, previous research suggests interpersonal perfectionism is associated with higher levels of trait loneliness (Chang, 2013; Chang et al., 2008; Goya Arce & Polo, 2016; Muyan & Chang, 2015); however, this association has not been examined in daily life. In the current study, the dimensions of perfectionism differently predicted trait and daily levels of loneliness. SPP was positively related to trait loneliness and daily levels of loneliness, which was expected based on previous research. SOP, in contrast, was negatively related to both measures of loneliness. SOP is a

dimension of perfectionism that is defined as having excessively high personal standards (Hewitt & Flett, 199b), and is considered an adaptive form of perfectionism in some contexts (Hewitt & Flett, 2002). Findings from one study suggest SOP is not related to loneliness (Chang et al., 2008). However, research using different social constructs (i.e., social support, interpersonal style, negative social feedback) suggests that SOP, compared to SPP, is more socially adaptive (Blankstein, 1996; Nepon et al., 2011; Stoeber et al., 2017).

The findings from the current study provide additional support for the association between interpersonal perfectionism and higher levels of negative interactions and loneliness, and for the social disconnection model. Previous research has indicated that the presence of negative interactions (Dunkley et al., 2006; Mackinnon et al., 2012; Nepon et al., 2011) and loneliness (Chang et al., 2008; Goye Arce & Polo, 2016) partially explains the relation between perfectionism and depression. Therefore, further examination of factors that explain increased risk for negative social interactions and loneliness in perfectionists is warranted.

Attributional Style and Event-Specific Attributions

A second aim of the current study was to examine how socio-cognitive factors, such as causal attributions, explain the relation between interpersonal perfectionism and loneliness. Consistent with previous studies examining maladaptive perfectionism (Anshel & Mansouri, 2005; Stoeber & Becker, 2008), interpersonal perfectionists tended to make internal, global, and stable attributions about negative events (measured as trait attributional styles). Interestingly, SOP predicted positive attributional styles for positive

events (i.e., more internal, stable and global). Previous research suggests adaptive forms of perfectionism are associated with external attributions for success (Stoeber & Becker, 2008) and failure (Levine et al., 2017), and positively associated with negative attribution styles (Chang & Sanna, 2001). However, findings from the current study suggest that self-oriented perfectionists have an adaptive attributional style—they tend to make internal, global, and stable attributions about positive events. Mixed findings are common when examining self-oriented perfectionism. For example, previous research has found mixed evidence for the relation between self-oriented perfectionism and behavioral inhibition (Flett, Greene, & Hewitt, 2004; Kaye, Conroy, & Fifer, 2008; Randles et al., 2010), depression (see Hewitt & Flett, 2002 for a review), and self-efficacy (Hart, Gilner, Handal, & Gfeller, 1998; Mills & Blankstein, 2000).

Although perfectionism predicted trait level attributional styles, it did not predict event-specific attributions (measured as a composite assessing internal, stable, and global causal attributions) about negative social interactions in daily life. Of note, trait attributional style predicted event-specific internal and stable attributions but not global attributions. Contrary to predictions, attributions about negative social interactions did not explain variations in mood for interpersonal perfectionists. Additionally, attributions about daily social events did not explain the relation between interpersonal perfectionism and loneliness. One reason for the nonsignificant findings may be related to the emotional saliency of the negative social interactions. The item assessing negative social interactions was worded to capture broad experiences of negative social encounters. Therefore, participants may have reported on experiences that were negative but not

necessarily emotionally impactful. In the one previous study that examined daily event-specific attributions, the participants reported on 5 total daily stressors, and selected the most negative (Hankin et al., 2005). It is possible that allowing people to select the most negative event from the whole day captured a more emotionally-salient event. Therefore, the event-specific causal attributions in the current study may not have been as strongly linked to emotional experiences compared to previous research (Hankin et al., 2005).

Interestingly, SOP moderated the covariation of attributions at the daily level and sadness. Specifically, as scores increased on SOP, the association between making internal, stable, and global attributions about negative social interactions and feeling sad became stronger. This effect is similar to the finding from one study that suggests people high on SOP with negative attributional styles report higher depressive symptoms (Chang & Sanna, 2001). However, this finding is in contrast to the association between SOP and trait attributional style. When examining trait attributional style, self-oriented perfectionists tended to make internal, global, and stable attributions about positive events. It appears that although self-oriented perfectionists tended to make positive attributions (measured at the trait level), when they made negative attributions in daily life, it was maladaptive. The current study was the first to examine both trait attributional styles and event-specific attributions in perfectionists. To replicate these findings, it is important for future studies to examine attributional styles at both levels (trait and event-specific) and how they are related to perfectionism.

Expectations for Future Social Interactions

Another socio-cognitive variable that was examined in the current study was expectations about future social interactions. The two dimensions of perfectionism differently predicted expectations about future social interactions. Whereas interpersonal perfectionists had higher negative expectations for future social interactions, self-oriented perfectionists had lower negative expectations. Although perfectionists' expectations for social interactions is an area with limited research, previous studies suggest that interpersonal perfectionists tend to have low social self-efficacy (Alden et al., 1994; Locicero & Ashby, 2000; Martin et al., 1996), which may explain the higher levels of negative expectations for future social interactions. To date, the current study was the first to examine interpersonal perfectionists' tendency to have higher negative expectations about social interactions in daily life.

Another goal of the current study was to look at whether expectations for social interactions explain social disconnection in perfectionists. Expectations for future social interactions explained the relation between interpersonal perfectionism and loneliness at the concurrent time point but not the following time point. Due to the correlational design of the former finding (i.e., expectations and loneliness measured at the same time point), an alternative model was tested examining whether loneliness mediates the relation between SPP and expectations. The two models were equivalent with regards to fit and statistical significance of the paths. When two models are equivalent, it is best practice to prefer the model that has more theoretical justification; however, both models have theoretical justification but limited empirical support.

The hopelessness theory of depression (Abrahamson et al., 1989) supports the expectations mediation model. The hopelessness theory of depression posits that people experience a negative life event, make negative causal attributions about the event, feel hopeless, and in turn experience negative affect (Abrahamson et al., 1989). Using this model as a framework, expectations about the future, which is an indicator of hopelessness (Abrahamson et al., 1989), should lead to negative affect (e.g., feeling lonely). In support of the expectations mediation model, one research study found that expecting to be rejected mediated between shyness and loneliness (Jackson, Fritch, Nagasaka, & Gunderson, 2002). Moreover, although social self-efficacy is not a direct measure of expectations, two longitudinal studies have found that lower social self-efficacy partially explained future loneliness (Herman & Betz, 2006; Wei, Russell, & Zakalik, 2005).

In support of the loneliness mediation model, loneliness theory suggests that lonely people tend to have negative perceptions of others and negative social expectations, which in turn leads to behaviors that sustain loneliness (Cacioppo & Hawkley, 2014; Cacioppo & Hawkley, 2009; Peplau & Perlman, 1979). However, there is relatively less empirical support that suggests that lonely people have negative expectations. Empirical studies suggest that lonely people have higher negative perceptions of others (Wittenberg & Reis, 1986) and perceive relationship and communication quality as more negative (Duck, Pond, & Learham, 1994) compared to non-lonely people. More negative perceptions of others likely leads to more negative expectations for interactions; however, social expectations have not been directly

examined in lonely people. Lastly, one study found support for a bidirectional relationship between social self-efficacy and loneliness (Tsai, Wang, & Wei, 2016).

In sum, it appears there is theoretical support for each model; however, the empirical support for the models is lacking due to the limited number of studies focused on expectations for future social interactions. Therefore, comparing theoretical and empirical support for the two mediation models is difficult due to the lack of research directly examining social expectations. More studies that have longitudinal designs are needed to tease apart the causal direction of the association between negative social expectations and loneliness.

Although the findings only partially support the hypothesis, and should be replicated using longitudinal designs, they extend the social disconnection model by providing further insight into how interpersonal perfectionists interpret their social world and whether these interpretations relate to social disconnection. The social disconnection model posits that interpersonal perfectionists feel hopeless about their social relationships and feel disconnected from others, which explains risk for suicidality (Hewitt et al., 2006). The current study provides support that interpersonal perfectionists feel hopeless (higher negative expectations) about social interactions, which is related to higher levels of loneliness.

Also, as expected, attributions about negative social interactions predicted higher levels of negative expectations for future social interactions. Previous research examining causal stable attributions and the relation to expectations for future events has focused on achievement situations (see Weiner, 1985 for a review). The current study provides

evidence that a similar cognitive process may occur for social situations—making stable causal attributions about a negative social experience leads to having higher negative expectations for future social experiences.

Expectations about future social interactions emerged as an adaptive cognitive process for self-oriented perfectionists. Self-oriented perfectionists had fewer negative expectations about future social interactions, which were related to lower levels of loneliness. Thus far, research has not focused on self-oriented perfectionists' expectations for social events (only achievement events). Studies have examined the association between adaptive perfectionism and social self-efficacy; however, results are mixed (Alden et al., 1994; Locicero & Ashby, 2000; Martin et al., 1996). One study showed a negative relationship between adaptive perfectionism and social self-efficacy (Alden et al., 1994); another study showed a positive relationship (Locicero & Ashby, 2000); and one study showed no relationship (Martin et al., 1996). Research on SOP suggests that they have positive achievement expectations (Brown et al., 1999) and positive future thinking (O'Connor et al., 2004; Stoeber & Corr, 2017). However, the current study was the first to examine self-oriented perfectionists' expectations about daily social interactions; therefore, the literature would benefit from replication studies examining this association.

In sum, regardless of the causal direction, expectations about future social interactions have a consistent relation with social disconnection for interpersonal perfectionists. Higher negative expectations for their social interactions are associated with higher levels of disconnection. Self-oriented perfectionists, in contrast, tend to be

less negative when thinking about their future social interactions, and experience lower levels of loneliness. Having negative expectations for social interactions appears to be another factor that differentiates between these dimensions of perfectionism and is associated with increased risk for negative affect in interpersonal perfectionists.

Perfectionism and Affect

Lastly, the current study replicated previous findings linking perfectionism with daily affect and anxiety and depressive symptoms. Briefly, people high on interpersonal perfectionism reported having lower levels of positive affect, and had higher levels of sadness, anxiety, and irritability. Self-oriented perfectionists, however, reported having higher levels of positive affect and had lower levels of sadness and irritability. These findings are consistent with previous research that suggests that maladaptive forms of perfectionism, such as interpersonal perfectionism, is associated with higher levels of daily negative affect (Dunkley et al., 2003; Dunkley, Ma, Lee, Preacher, & Zuroff, 2014; Mushquash & Sherry, 2012). In contrast, personal standards, a latent variable defined in part by SOP, has been associated with daily positive affect (Dunkley et al., 2014).

Interpersonal perfectionism was also associated with higher levels of anxiety and depressive symptoms whereas SOP predicted lower levels of general distress and anhedonic depression. These findings are consistent with previous research using similar measures (Dunkley, Blankstein, & Berg, 2011; Flett, Madorsky, Hewitt, & Heisel, 2002), and supports the conceptualization that interpersonal perfectionism is more strongly and consistently associated with maladaptive outcomes, compared to SOP.

Limitations

There were several limitations of the current study. First, measuring negative social interactions and attributions about the interactions as event-contingent resulted in fewer observations compared to the other daily constructs. There were approximately 411 observations of negative social interactions and related attributions, which is substantially smaller than the 2,627 observations for expectations for future social interactions and mood items. Therefore, in models where attributions about negative social interactions was a predictor (i.e., exogenous variable), power was reduced because people without data for that time point were dropped from analyses.

Additionally, the surveys were interval-contingent (i.e., every 5 hours) and asked people to recall social interactions in the past three hours. Although this structure hopefully reduced difficulty with recall, there were likely negative social interactions outside of those three hours that were not captured. The one study that examined event-specific attributions in daily life allowed participants to report on 5 different negative events, and then select the one they perceived as the most negative (Hankin et al., 2005). In the current study, it is possible that due to the survey schedule, the most negative social events were not captured, and events may have not been emotionally salient; therefore, the interactions themselves, and the causal attributions about the interactions, may have been less emotionally impactful. Future studies examining negative social interactions in perfectionists may want to consider using more frequent event-contingent surveys to capture a more accurate account of the quantity of negative social interactions. However, other studies aimed at examining appraisals about negative events, the impact

on mood, and the relation to perfectionism, may want to consider less frequent surveys to capture the most emotionally salient events of the day.

There is also a possibility that negative interactions with specific people, such as parents, friends, or romantic partners, have different effects on mood and perceptions of social disconnection. In the current study, negative social interactions were measured broadly, and participants did not specify who the interaction was with. Previous research has examined perfectionism and conflict between romantic partners (Mackinnon et al., 2012; Sherry et al., 2014) and perceived discrepancies in mother-daughter dyads (Mushquash & Sherry, 2013); however, research has not focused on the socio-cognitive factors related to conflict and social stress associated with specific relationships.

Another limitation of the current study is the use of standard fit indices (e.g., Chi-square, CFI, RMSEA) to determine the fit of the multilevel structural equation models (MSEM). Standard fit indices assume that variables are independent; however, multilevel data structures are typically not independent based on the clustered nature of the data (Ryu & West, 2009). For example, in the current study, the observations at the within-level are not independent. However, the current study did report the within and between-level SRMR values. These values were generated by Mplus 8 where the SRMR was calculated for each level separately as if they were independent groups. The within and between-level SRMR values allow for evaluating fit for each level. Additionally, the current study relied on the AIC to compare fit of nested models, which was also used by Mushquash and Sherry (2012) and Dunkley et al. (2003) with MSEM. Although the

current study used within and between-level SRMR values and AIC, the standard fit statistics reported should be interpreted with some caution.

Lastly, the current study used a student sample, which may not generalize to a clinical sample. Although the current study over-sampled individuals who scored higher on perfectionism, non-clinical samples tend to have lower ratings of daily negative affect (Barge-Schaapveld, Nicolson, Berkhof, & deVries, 1999) and lower perfectionism scores compared to clinical samples (Hewitt & Flett, 1991b; Hewitt, Flett, Turnbull-Donovan, & Mikail, 1991). Future research would benefit from examining daily socio-cognitive factors, such as attributions and expectations, in clinical samples. Socially prescribed perfectionists are at increased risk for depression, and depression is associated with negative attributional style and hopelessness (see Haeffel et al., 2008 for a review). Therefore, future studies should examine whether attributions and expectations explain the increased risk for depression in socially prescribed perfectionists.

Implications

Perfectionism is considered a transdiagnostic risk process and people high on perfectionism are at risk for a variety of psychological disorders, such as depression, anxiety, and eating disorders. Therefore, studies have recently examined whether perfectionism can be targeted in treatment and when targeted, if symptoms across psychological disorders are reduced. Thus far, cognitive-behavioral therapy (CBT) is the most prominent treatment for targeting perfectionism. Research shows that CBT for perfectionism decreases perfectionism scores and also decreases depressive, anxiety, and eating disorder symptoms (see Lloyd et al., 2015 for a meta-analysis). However, research

suggests that people high on interpersonal perfectionism, compared to other forms of perfectionism, may not show as consistent of reductions in symptoms (Lloyd et al., 2015; Lundh & Öst, 2001). Some researchers have proposed that targeting social functioning in interpersonal perfectionists may be an effective treatment technique (Hewitt et al., 2015). Findings from the current study suggest interpersonal perfectionists tended to have higher negative social interactions, had higher levels of negative expectations for future interactions, and reported higher levels of loneliness (trait and daily measures). These findings support the conceptualization that targeting interpersonal perfectionists' social functioning in treatment may be useful.

Additionally, even though the direction of causality between expectations and loneliness is uncertain, the consistent relation with each other suggests that both may be appropriate treatment targets. Results from the current study suggest that interpersonal perfectionists had higher negative expectations, which may explain higher levels of loneliness. Based on the loneliness theory (Cacioppo & Hawkley, 2014; Cacioppo & Hawkley, 2009; Peplau & Perlman, 1979), it is also possible that this is a cyclical relation where people who are lonely, such as interpersonal perfectionists, also have negative expectations for their social interactions. Therefore, targeting processes that lead to (or result from) loneliness, may be effective in reducing loneliness and negative affect. CBT for perfectionism uses cognitive restructuring techniques to identify more adaptive/useful cognitions. If perfectionists are reporting high levels of loneliness, it may be useful to examine social expectations and potentially using cognitive restructuring techniques for negative expectations.

In addition to targeting negative expectations for interactions, addressing high levels of loneliness in interpersonal perfectionists is important. Loneliness is associated with poorer mental health (Cacioppo et al., 2010) and health outcomes (Luo, Hawkley, Waite, & Cacioppo, 2012). Results from the current study suggest that interpersonal perfectionists experience higher levels of trait loneliness and daily loneliness. Moreover, past research suggests that interpersonal perfectionists with higher levels of loneliness have higher depressive and anxiety symptoms (Chang et al., 2008). Therefore, targeting perceived social disconnection from others in treatment for perfectionists may be effective for reducing psychopathology symptoms.

Lastly, the current study replicated findings from Hankin et al. (2005) suggesting that daily negative event-specific attributions explain variations in daily mood (i.e., sadness and loneliness). Moreover, for people with negative trait attributional styles, daily event-specific attributions were more strongly associated with daily negative mood. Specifically, in the current study for people with negative attributional styles, making daily negative attributions was associated with feeling like one's emotions were out of control and lower positive affect. Hankin et al. (2005) found a similar moderation effect with trait attributional style, event-specific attributions, and daily depressive symptoms. These findings have two important implications. Firstly, the findings from the current study and Hankin et al. (2005) suggest that it is important to examine trait attributional styles and event-specific attributions separately and also how they relate to one another to explain mood. For example, event-specific attributions explain unique variations in daily mood above trait attributional styles; however, variations in mood associated with event-

specific attributions were exacerbated by trait attributional styles. Therefore, examining both types of causal attributions (i.e., trait and event-specific) provides a unique understanding of how attributions impact daily mood. Secondly, findings from the current study and Hankin et al. (2005) suggest that for people with trait negative attributional styles, making negative event-specific attributions may be maladaptive. Previous research also suggests that negative attributions are a risk factor for depression (Abramson et al., 1989; Alloy et al., 1999; Metalsky, Joiner, Hardin, & Abramson, 1993); therefore, teaching people to use strategies, such as cognitive restructuring, to target event-specific attributions may be a useful intervention.

Summary

The purpose of the current study was to extend the social disconnection model by examining whether daily attributions about negative social interactions and expectations for future social interactions explained the relation between interpersonal perfectionism and loneliness. Although interpersonal perfectionists had a higher amount of daily negative social interactions, the causal attributions they made about these interactions did not explain variations in mood, including loneliness. Expectations about future social interactions, in contrast, did explain the relation between interpersonal perfectionism and loneliness. Although, the causal direction of the association between social expectations and loneliness may be unclear, results indicate there is a consistent association between them for interpersonal perfectionists. Therefore, based on this consistent association, expectations about future social interactions and loneliness may be effective treatment target to decrease loneliness and improve mood.

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APPENDIX A

TABLES AND FIGURES

Table 1

Means, Standard Deviation, Intraclass Correlations, and Bivariate Correlation for ESM Items

	N	*M*	*SD*	ICC	1	2	3	4	5	6	7	8	9	10	11	12
1. PA	2,497	4.48	1.69		--											
2. Sad	2,493	2.09	1.56	0.39	-0.51	--										
3. Control	2,495	1.88	1.51	0.37	-0.42	0.67	--									
4. Anxious	2,493	2.20	1.62	0.42	-0.37	0.55	0.62	--								
5. Irritable	2,494	2.16	1.65	0.28	-0.50	0.60	0.62	0.53	--							
6. Lonely	2,502	1.94	0.82	0.50	-0.55	0.59	0.52	0.47	0.40	--						
7. Attributions composite	393	3.68	1.28	0.29	-0.21	0.23	0.15	0.12	0.14	0.32	--					
8. Internal	393	3.11	1.85	0.22	-0.09	0.08	0.05	0.04	0.01	0.15	0.61	--				
9. Stable	393	4.14	1.60	0.25	-0.18	0.14	0.08	0.04	0.08	0.21	0.65	0.03	--			
10. Global	393	3.78	2.05	0.27	-0.17	0.24	0.18	0.15	0.19	0.29	0.80	0.20	0.40	--		
11. Important	393	4.19	1.86	0.24	-0.11	0.23	0.14	0.20	0.09	0.11	0.30	0.09	0.15	0.36	--	
12. Expectations	2,501	2.25	0.82	0.55	-0.54	0.50	0.46	0.42	0.43	0.59	0.30	0.07	0.24	0.29	0.16	--

Note: N = number of observations. ICC = intraclass correlation. PA = Positive Affect composite. Control = “My emotions feel out of control right now”. Internal, stable, and global are causal attribution items about negative social interaction. Important is the rated importance of the negative social interaction. Expectations is the rating for negative expectations for future social

interactions. Within-person correlations from the whole sample. (N = 2,502 for Lonely; N = 393 for Attributions composite, Internal, Global, Stable, and Important; N = 2,492-2,497 for mood items).

Table 2

Means, Standard Deviations, and Bivariate Correlations for Between-Level Variables

	N	*M*	*SD*	1.	2.	3.	4.	5.	6.	7.	8.
1. SPP	143	60.20	13.66	--							
2. SOP	143	72.52	14.01	0.52**	--						
3. GD	142	18.10	7.86	0.41**	0.05	--					
4. AA	142	16.26	6.63	0.31**	0.09	0.62**	--				
5. AD	142	22.07	7.19	0.28**	-0.08	0.62**	0.26**	--			
6. UCLA	142	45.56	11.97	0.40**	0.02	0.63**	0.33**	0.74**	--		
7. Positive Attributions	142	14.24	2.55	-0.02	0.23**	-0.17*	-0.14	-0.27**	-0.21**	--	
8. Negative Attributions	142	11.67	2.54	0.26**	0.06	0.37**	0.27**	0.19*	0.31**	-0.00	--

Note: SPP = socially prescribed perfectionism. SOP = self-oriented perfectionism. AA = Anxious Arousal from MASQ. GD = General Distress from MASQ. AD = Anhedonic Depression from MASQ. UCLA = UCLA Loneliness Scale. Positive and Negative Attributions are subscales from the ASQ. M = Mean, SD = standard deviation, and bivariate correlations are for whole sample (N = 145). ** Correlation is significant at the $p < 0.01$ level, * Correlation is significant at the $p < 0.05$ level.

Table 3

Perfectionism Predicting Trait Level Variables (MASQ Subscales, Loneliness, and ASQ Subscales)

	SPP			SOP		
	b	*SE*	*p*	*b*	*SE*	*p*
MASQ GD	**0.30**	**0.05**	**0.00**	**-0.11**	**0.05**	**0.03**
MASQ AA	**0.17**	**0.05**	**0.00**	-0.04	0.04	0.33
MASQ AD	**0.23**	**0.05**	**0.00**	**-0.15**	**0.05**	**0.00**
UCLA	**0.48**	**0.07**	**0.00**	**0.21**	**0.08**	**0.01**
ASQ Good	**-0.04**	**0.01**	**0.01**	**0.30**	**0.02**	**0.00**
ASQ Bad	**0.06**	**0.02**	**0.00**	-0.03	0.02	0.14

Note: SPP = socially prescribed perfectionism. SOP = self-oriented perfectionism. GD = General Distress. AA = Anxious Arousal. AD = Anhedonic Depression. MASQ Subscales, UCLA, ASQ Good, and ASQ Bad were regressed on SPP and SOP for the whole sample (N = 142).

Table 4

Main Effects and Cross-Level Interactions of Perfectionism, Attributions, and Expectations Predicting Daily Mood

	SPP			SOP			Attributions			Expectations		
	b	*SE*	*p*	b	*SE*	*p*	b	*SE*	*p*	b	*SE*	*p*
PA	-0.06	0.09	0.52	0.12	0.01	0.02	-0.07	0.08	0.40	**-0.81**	**0.07**	**0.00**
PA x Attributions	0.08	0.07	0.21	-0.06	0.07	0.24						
Sad	**0.24**	**0.07**	**0.00**	**-0.16**	**0.08**	**0.04**	**0.40**	**0.09**	**0.00**	**0.84**	**0.07**	**0.00**
Sad x Attributions	-0.22	0.12	0.07	**0.26**	**0.11**	**0.01**						
Control	**0.28**	**0.09**	**0.00**	-0.14	0.08	0.10	0.12	0.11	0.27	**0.76**	**0.08**	**0.00**
Control x Attributions	-0.18	0.11	0.13	0.16	0.09	0.10						
Anxious	**0.23**	**0.09**	**0.00**	-0.08	0.08	0.35	0.07	0.08	0.35	**0.60**	**0.08**	**0.00**
Anxious x Attributions	-0.02	0.15	0.89	0.15	0.11	0.18						
Irritable	**0.33**	**0.09**	**0.00**	**-0.21**	**0.08**	**0.01**	0.16	0.13	0.20	**0.84**	**0.08**	**0.00**
Irritable x Attributions	-0.00	0.14	0.99	0.15	0.12	0.21						
Lonely	**0.26**	**0.08**	**0.00**	**-0.20**	**0.07**	**0.01**	**0.16**	**0.04**	**0.00**	**0.41**	**0.05**	**0.00**
Lonely x Attributions	-0.02	0.05	0.72	0.09	0.05	0.08						

Note: SPP = socially prescribed perfectionism. SOP = self-oriented perfectionism. PA = Positive Affect composite. Control = "My emotions feel out of control right now". Mood items regressed on SPP, SOP, Attributions composite, and Expectations (controlling for MASQ subscales) for the whole sample. Cross-level interaction of SPP and SOP predicting the slope of Attributions composite and mood items (controlling for ASQ Good and ASQ Bad).

Table 5

Standardized Path Coefficients for Model 1 and Model 2

	Model 1			Model 2		
	b	*SE*	*p*	b	*SE*	*p*
Within-Person Level						
Attributions -> Loneliness t+1	0.01	0.07	0.95			
Expectations -> Loneliness t+1	0.07	0.04	0.09	0.02	0.07	0.982
Attributions -> Expectations	**0.14**	**0.06**	**0.01**	0.17	0.07	0.02
Lonely -> Loneliness t+1	**0.16**	**0.04**	**0.00**	**0.28**	**0.09**	**0.00**
Between-Person Level						
SPP -> Attributions	0.23	0.16	0.15			
SOP -> Attributions	0.00	0.17	0.99			
Attributions -> Expectations	**0.54**	**0.11**	**0.00**	**0.49**	**0.12**	**0.00**
Attributions -> Loneliness t+1	0.00	0.01	0.78			
SPP -> Expectations	**0.41**	**0.09**	**0.00**	**0.51**	**0.10**	**0.00**
SOP -> Expectations	**-0.26**	**0.10**	**0.01**	**-0.22**	**0.11**	**0.04**
Expectations -> Loneliness t+1	0.03	0.03	0.24	-0.02	0.13	0.89
Loneliness -> Loneliness t+1	**1.01**	**0.01**	**0.00**	**0.96**	**0.17**	**0.00**
SPP -> Loneliness t+1	-0.04	0.02	0.06	0.06	0.16	0.72
SOP -> Loneliness t+1	0.02	0.02	0.34	-0.13	0.13	0.31

Note. SPP = socially prescribed perfectionism. SOP = self-oriented perfectionism. Loneliness t+1 = loneliness measured at the next time point. Table presents the standardized path coefficients, standard errors, and p-values for the hypothesized model (Model 1) and the incremental validity model (Model 2). In Model 1, N = 143; in Model 2, N = 117.

Table 6

Standardized Path Coefficients for Model 3 and Model 4

	Model 3			Model 4		
	b	*SE*	*p*	b	*SE*	*p*
Within-Person Level						
Attributions -> Loneliness	**0.17**	**0.03**	**0.00**			
Expectations -> Loneliness	**0.37**	**0.04**	**0.00**	**0.39**	**0.07**	**0.04**
Attributions -> Expectations	**0.13**	**0.06**	**0.00**			
Between-Person Level						
SPP -> Attributions	0.24	0.20	0.23			
SOP -> Attributions	0.02	0.21	0.91			
Attributions -> Expectations	**0.56**	**0.14**	**0.00**			
Attributions -> Loneliness	0.00	0.01	0.78			
SPP -> Expectations	**0.40**	**0.10**	**0.00**	**0.54**	**0.07**	**0.00**
SOP -> Expectations	**-0.27**	**0.12**	**0.03**	**-0.26**	**0.09**	**0.01**
Expectations -> Loneliness	**0.76**	**0.02**	**0.00**	**0.77**	**0.04**	**0.00**

Note. SPP = socially prescribed perfectionism. SOP = self-oriented perfectionism. Table presents the standardized path coefficients, standard errors, and p-values for the post-hoc analyses models, Model 2 and Model 3. N = 143 in both models.

Table 7

Bivariate Correlations Between Perfectionism and ASQ Subscales

	M	*SD*	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.
1. SPP	60.19	14.04	--											
2. SOP	72.28	13.68	0.52**	--										
3. Internal Good	14.60	2.78	-0.04	0.19*	--									
4. Stable Good	14.48	2.87	-0.05	0.16*	0.65**	--								
5. Global Good	13.93	3.00	0.03	0.23	0.45**	0.50**	--							
6. Internal Bad	12.17	3.15	0.19*	0.03	-0.19*	0.00	0.08	--						
7. Stable Bad	11.50	2.84	0.15	-0.02	-0.14	0.02	0.06	0.49**	--					
8. Global Bad	11.52	3.04	0.30**	0.12	-0.10	-0.03	0.21**	0.53**	0.53**	--				
9. Interpersonal Good	4.46	0.77	-0.06	0.21**	0.67**	0.70**	0.66**	-0.10	-0.02	0.05	--			
10. Interpersonal Bad	3.54	0.90	0.23**	0.06	-0.24**	-0.12	0.02	0.70**	0.69**	0.74**	-0.08	--		
11. Achievement Good	5.16	0.97	-0.02	0.21**	0.78**	0.74**	0.65**	-0.09	-0.09	-0.06	0.56**	-0.18*	--	

12. Achievement Bad	4.36	0.88	0.27**	0.09	-0.12	-0.00	0.17*	-0.11	0.68**	0.71**	-0.00	0.57**	-0.00	--

Note: SPP = socially prescribed perfectionism. SOP = self-oriented perfectionism. M = Mean, SD = standard deviation, and bivariate correlations are for whole sample (N = 142). ** Correlation is significant at the $p < 0.01$ level, * Correlation is significant at the $p < 0.05$ level.

Figure 1

Hypothesized Model

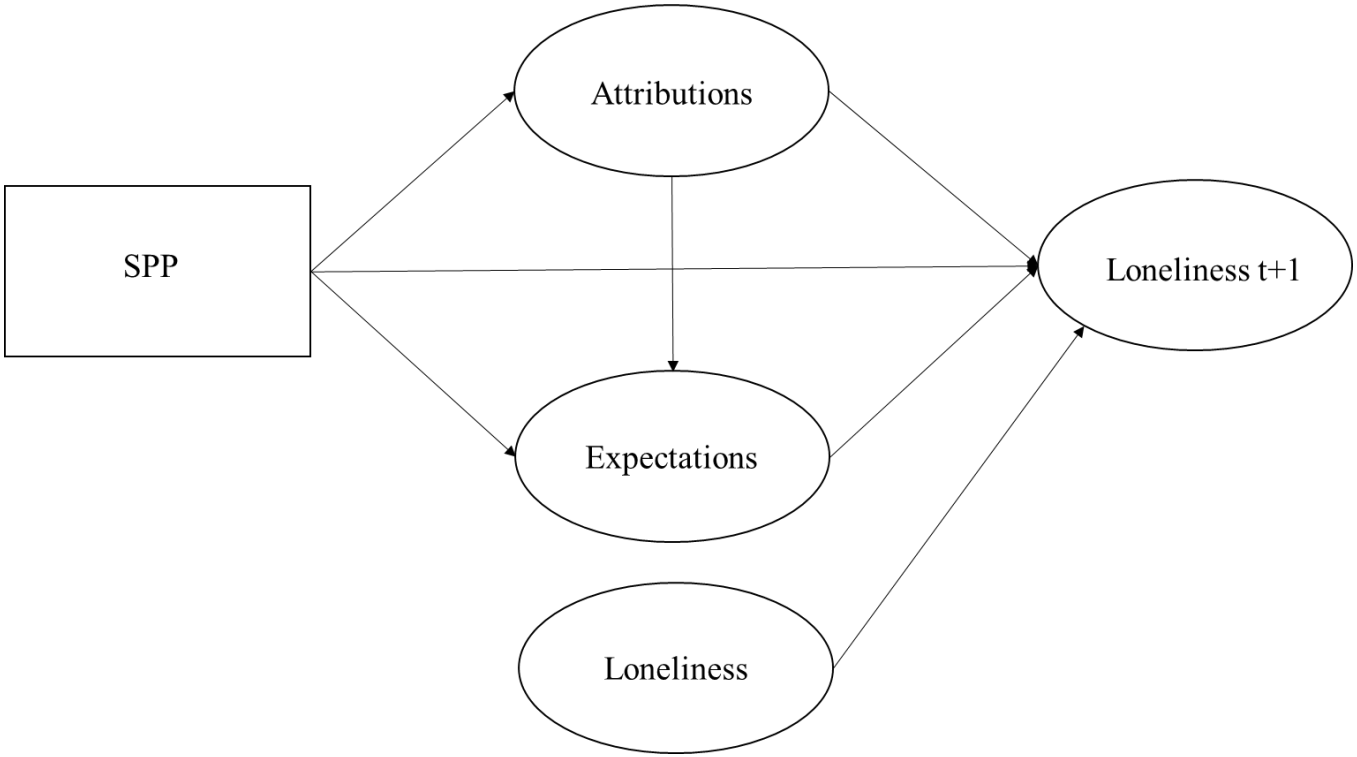


Figure 2

Flow Chart Depicting Compliance Data and Participants Excluded from Analyses

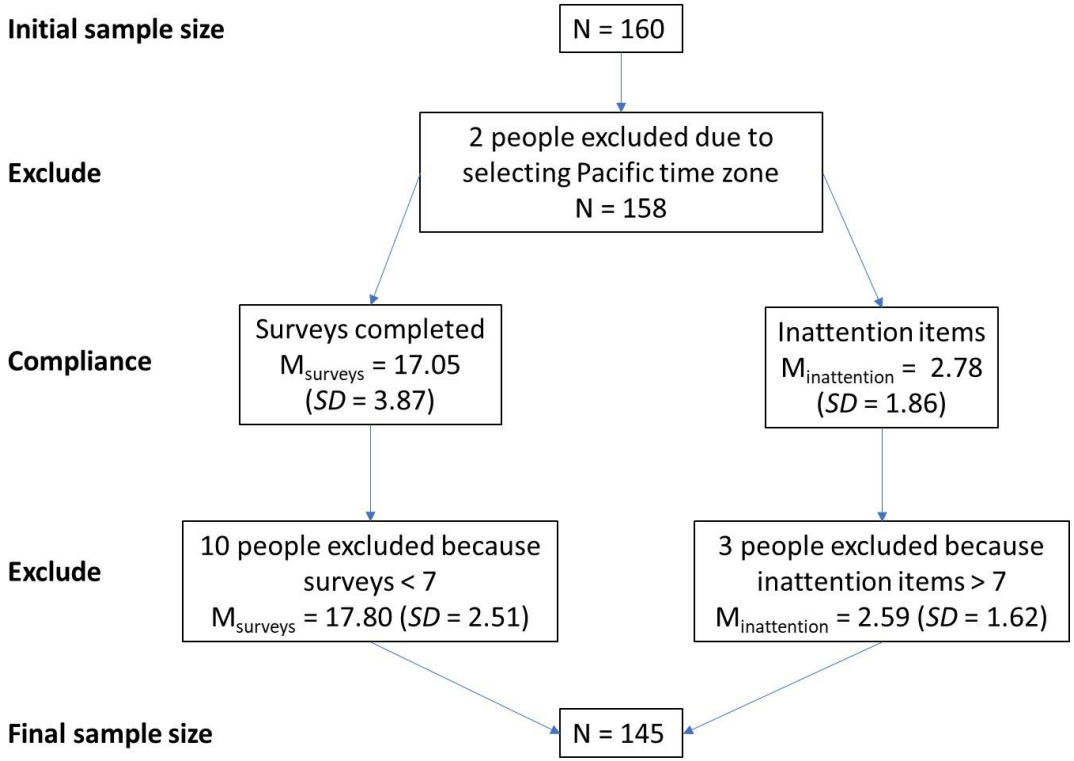
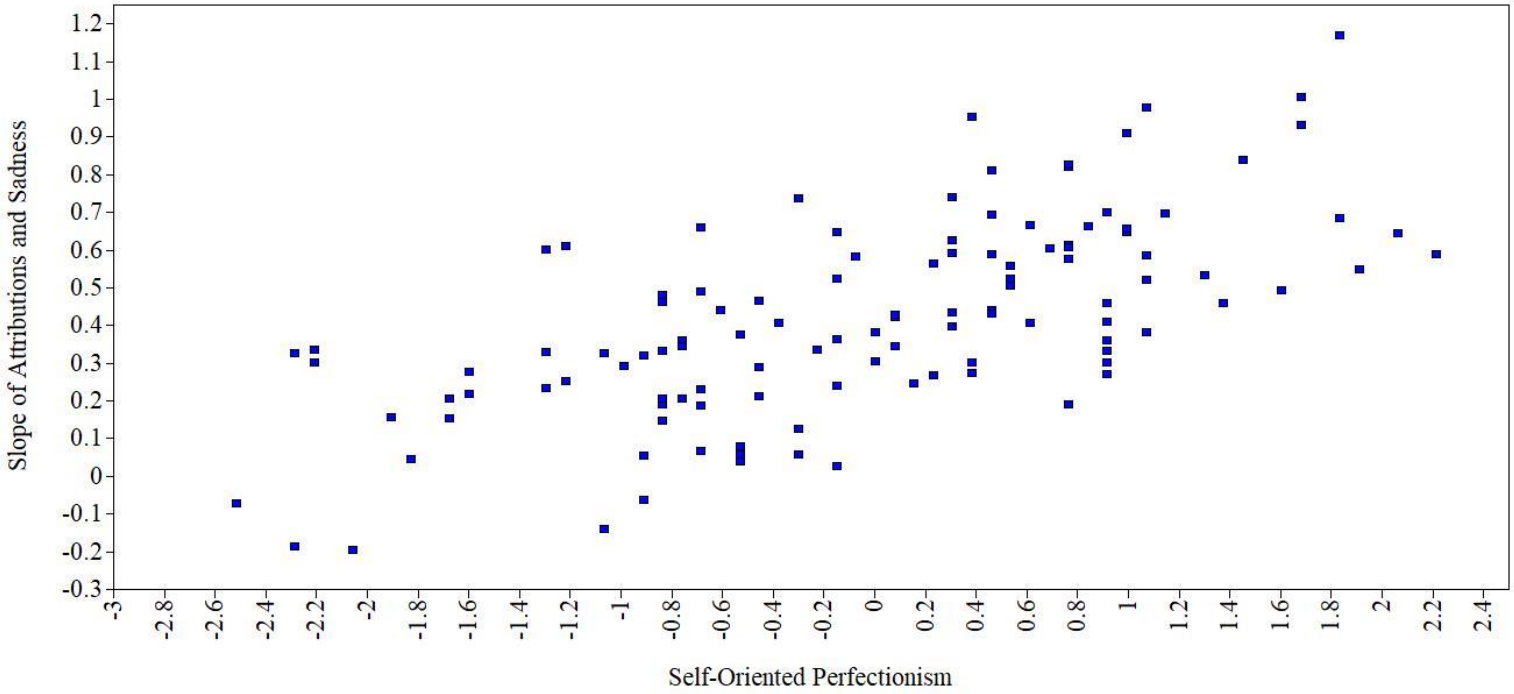


Figure 3

Cross-Level Interaction Showing the Relationship Between SOP and the Slope of Daily Attributions and Sadness.



Note: Cross-level interaction showing the relationship between SOP and the slope of daily sadness and attributions. As scores on SOP (X axis) increase, the covariation between attributions and sadness becomes more positive (i.e., stronger).

Figure 4

Model 1 Within and Between Path Models with Standardized Path Coefficients

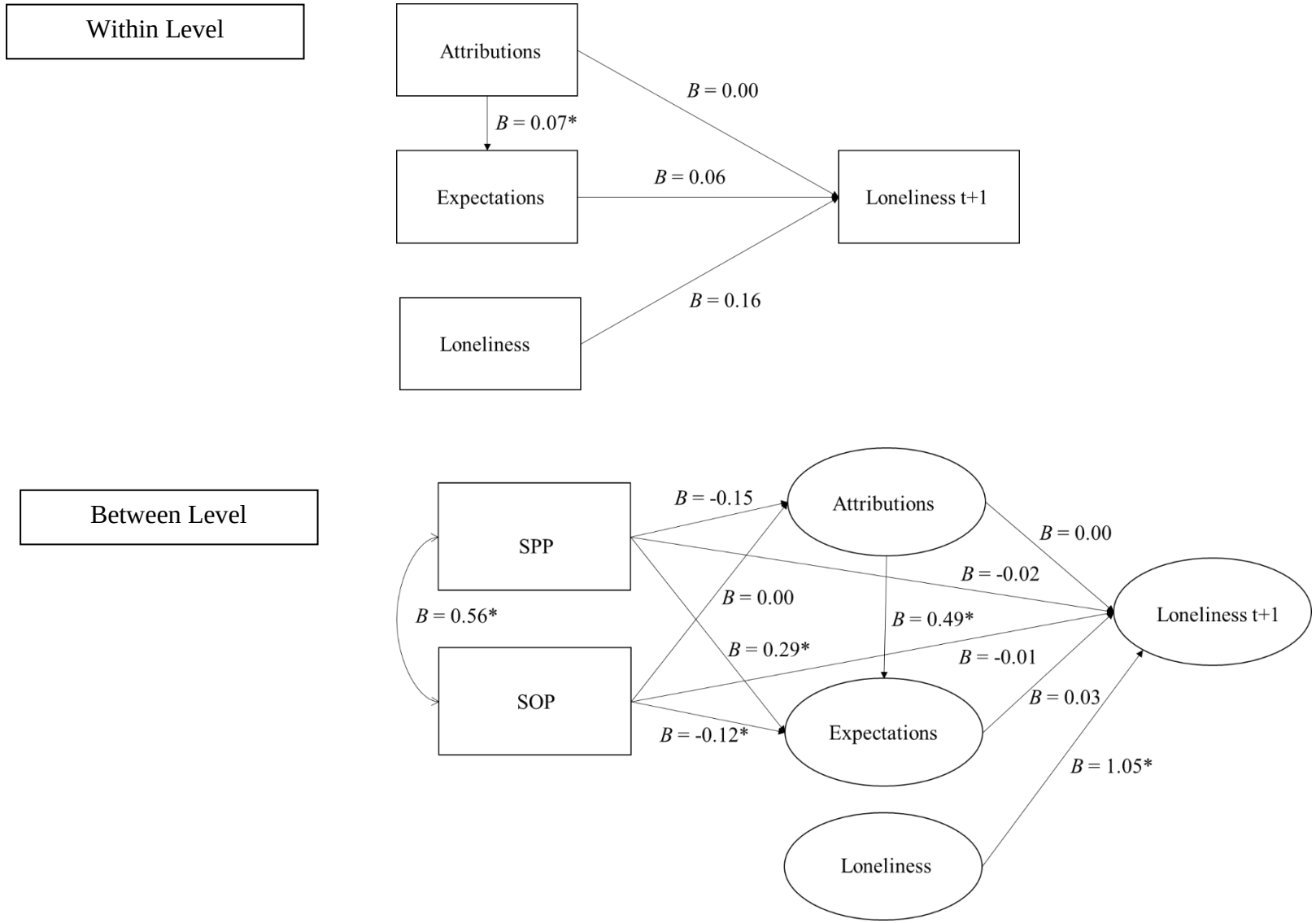


Figure 5

Model 2 Within and Between Path Models with Standardized Path Coefficients

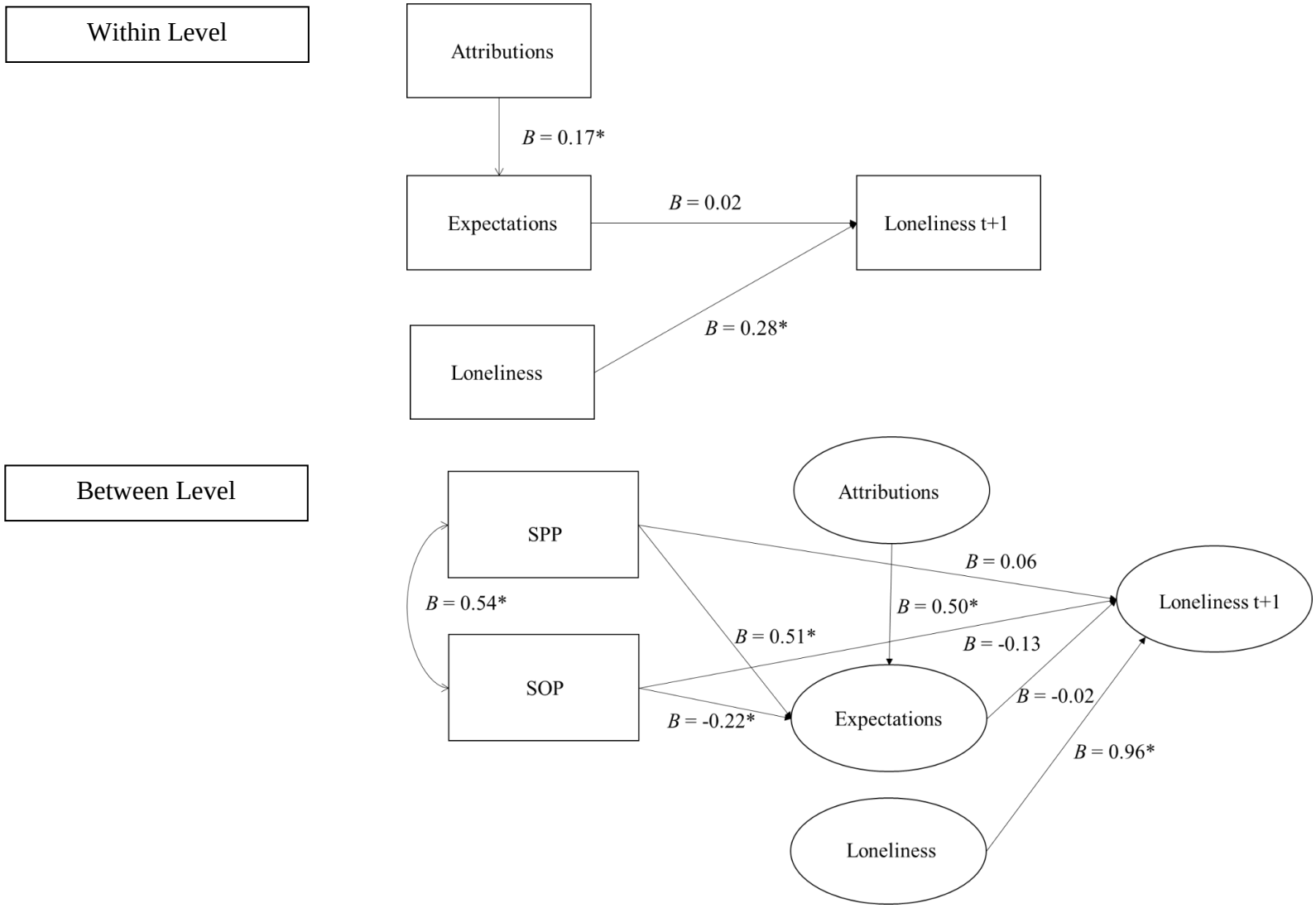


Figure 6

Model 3 Within and Between Path Models with Standardized Path Coefficients

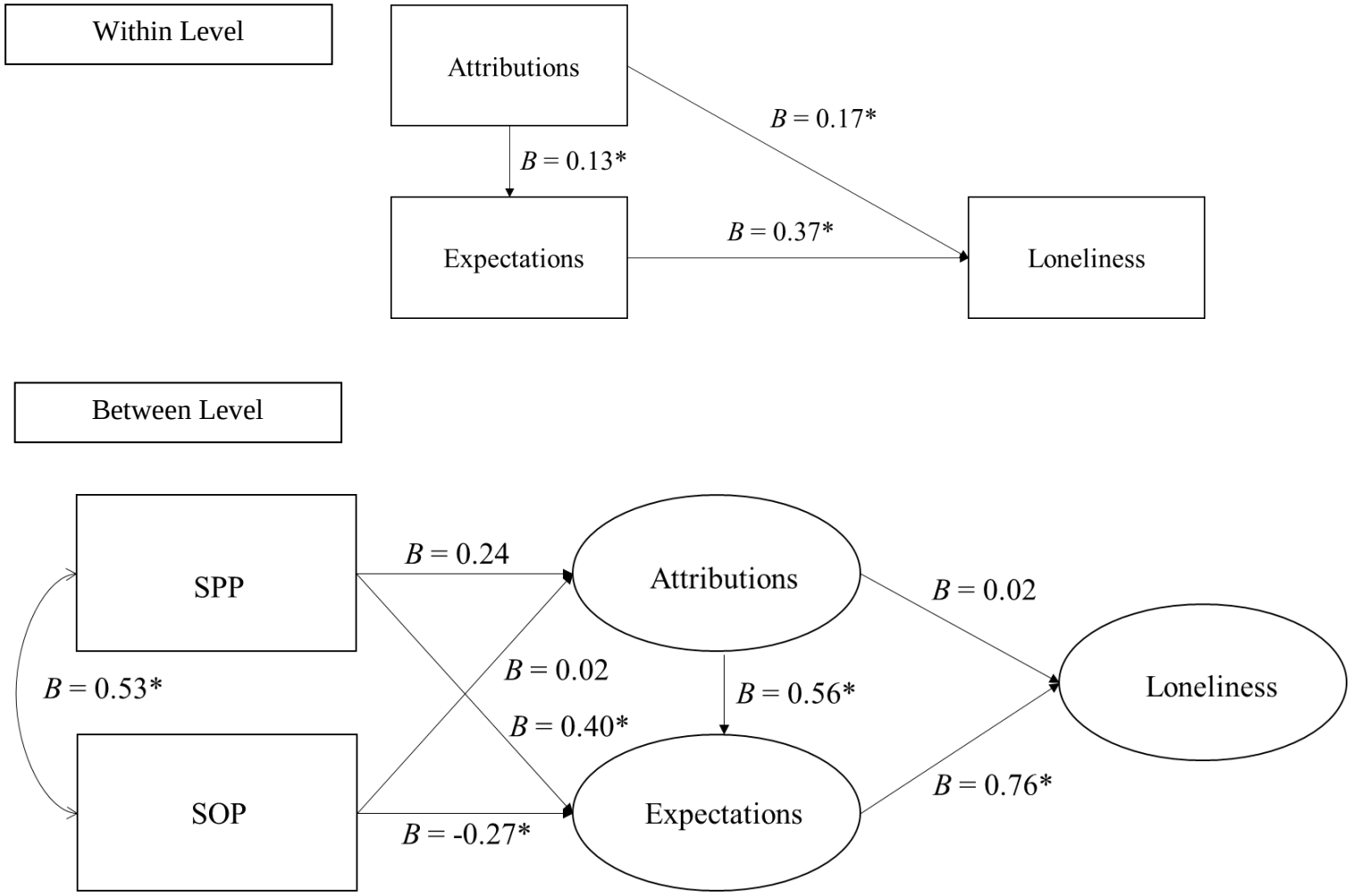


Figure 7

Model 4 (Expectations Mediation Model) Between-Level Path Model with Standardized Path Coefficients

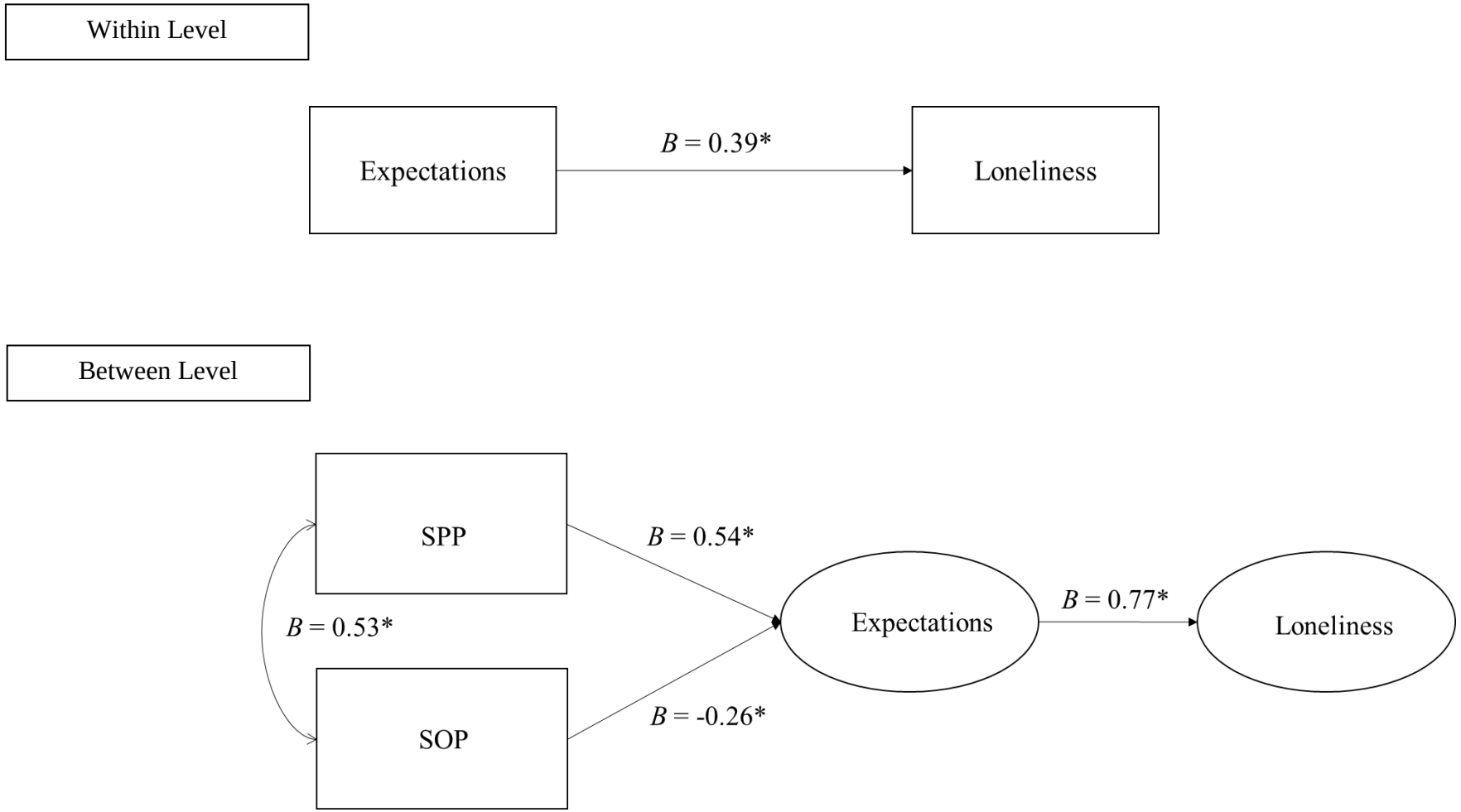


Figure 8

Model 5 (Expectations and Attributions Lagged) Within and Between Level Path Model with Standardized Path Coefficients

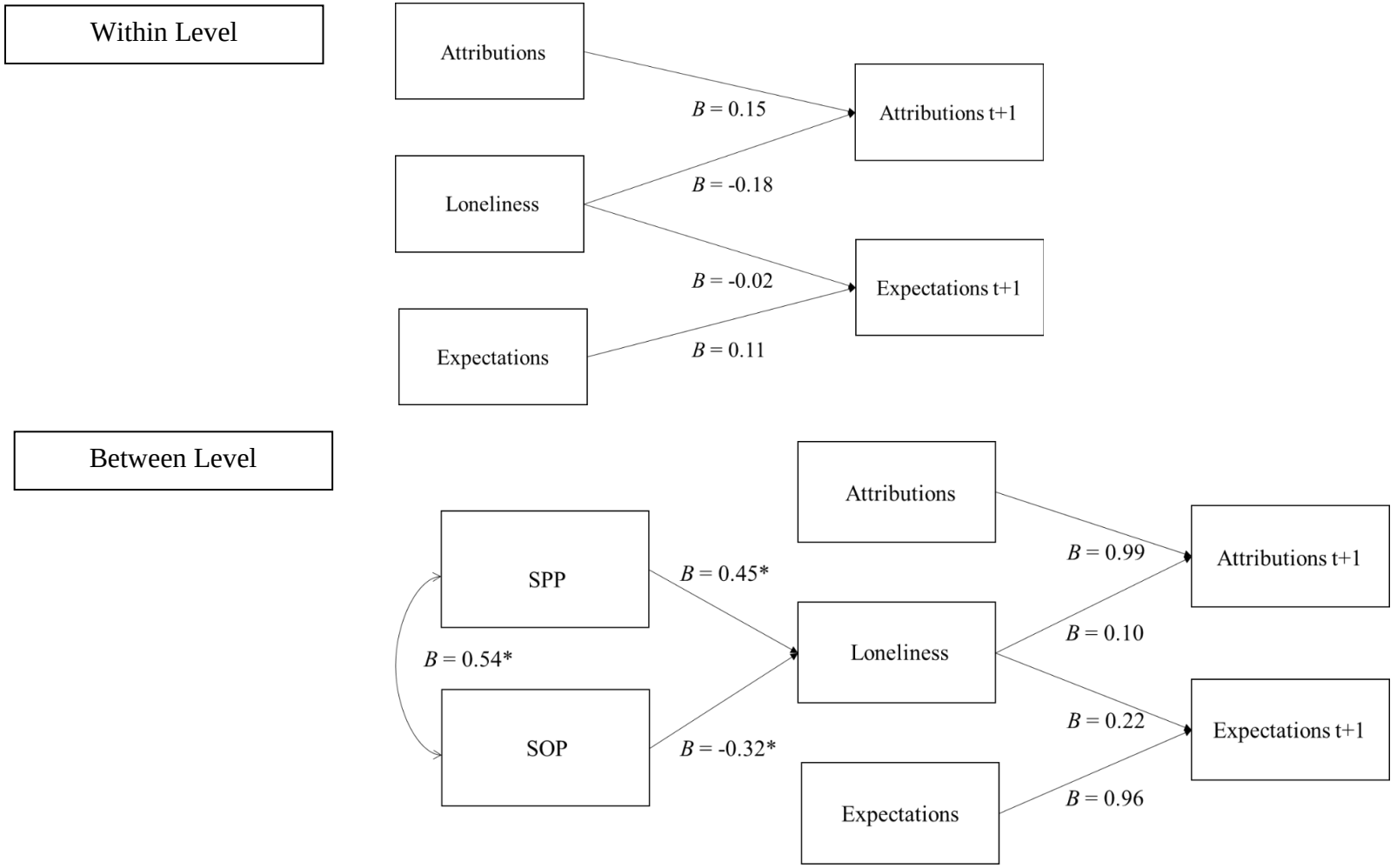


Figure 9

Model 6 (Loneliness Mediation Model) Within and Between Level Path Model with Standardized Path Coefficients